CPUC Energy Efficiency Primer

May 23, 2014

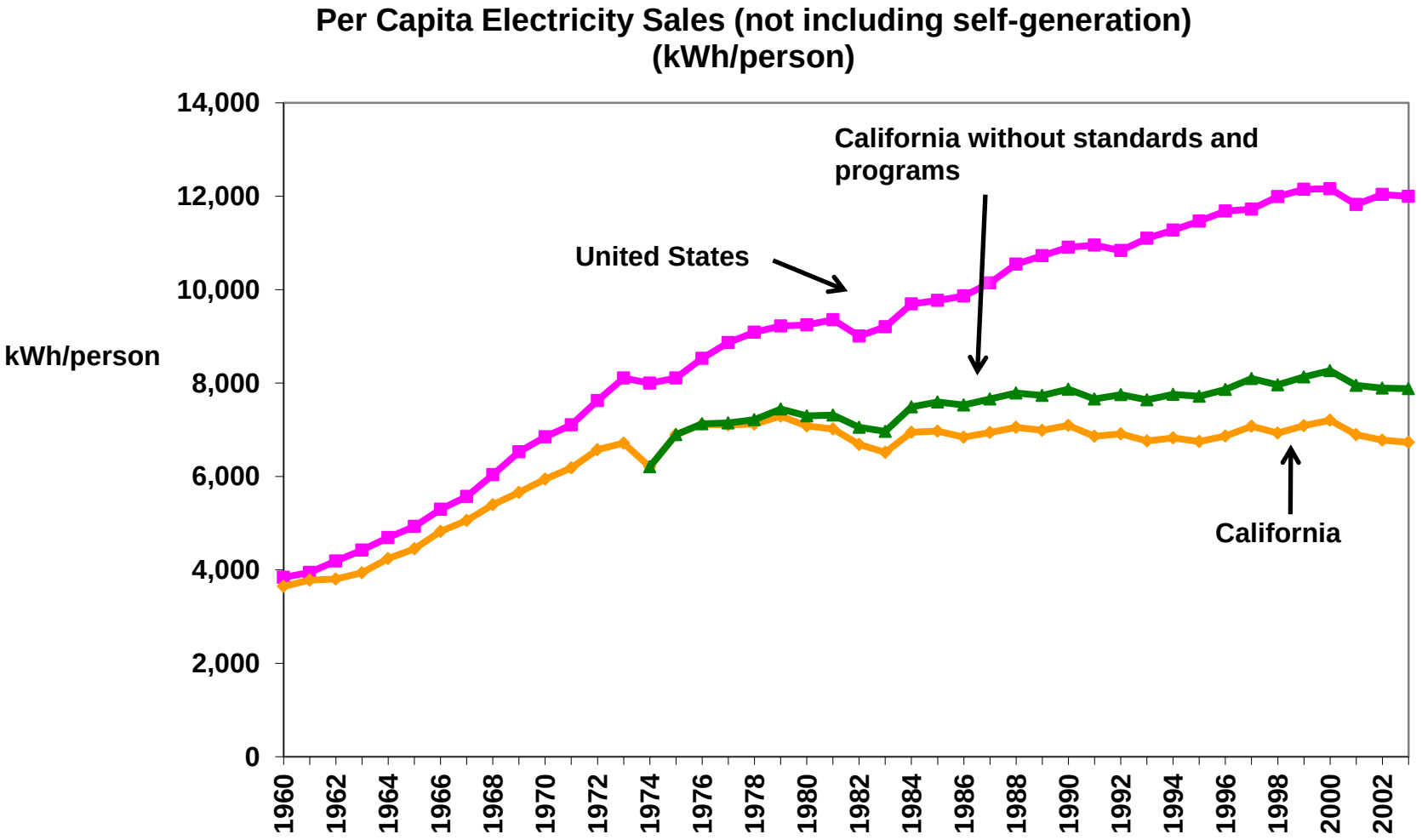
Energy Division
California Public Utilities Commission (CPUC)

Presentation Outline

1. Overview of CPUC Regulation
2. Cost-Effectiveness
3. Energy Efficiency Goals
4. Shareholder Incentives
5. Ex Ante/ Ex Post
6. EM&V
7. Strategic Plan
8. Energy Division Organizational Chart
9. Appendices

CPUC Regulation

The gap between U.S. and CA energy use can be partially attributed to EE.



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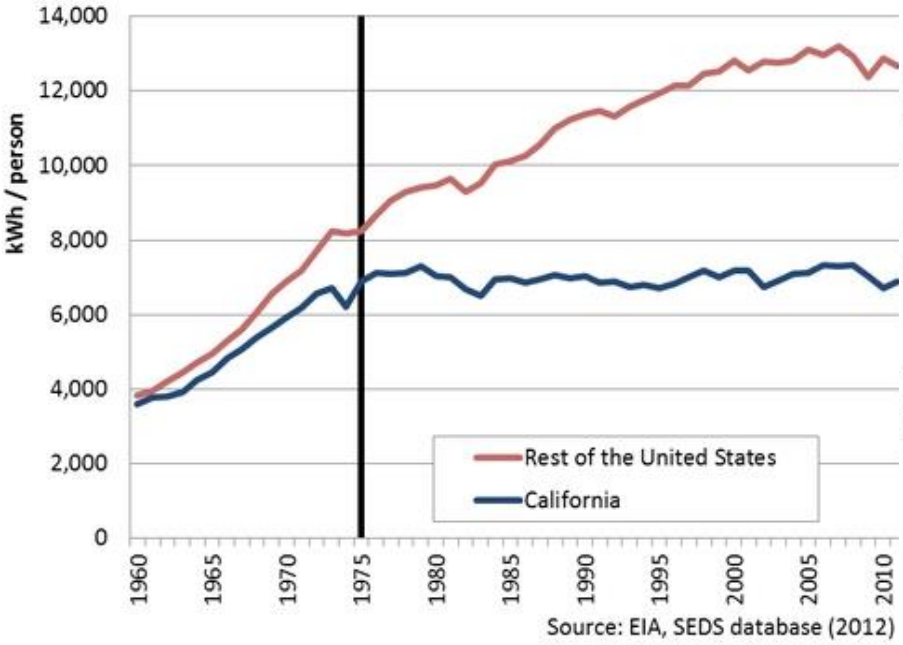
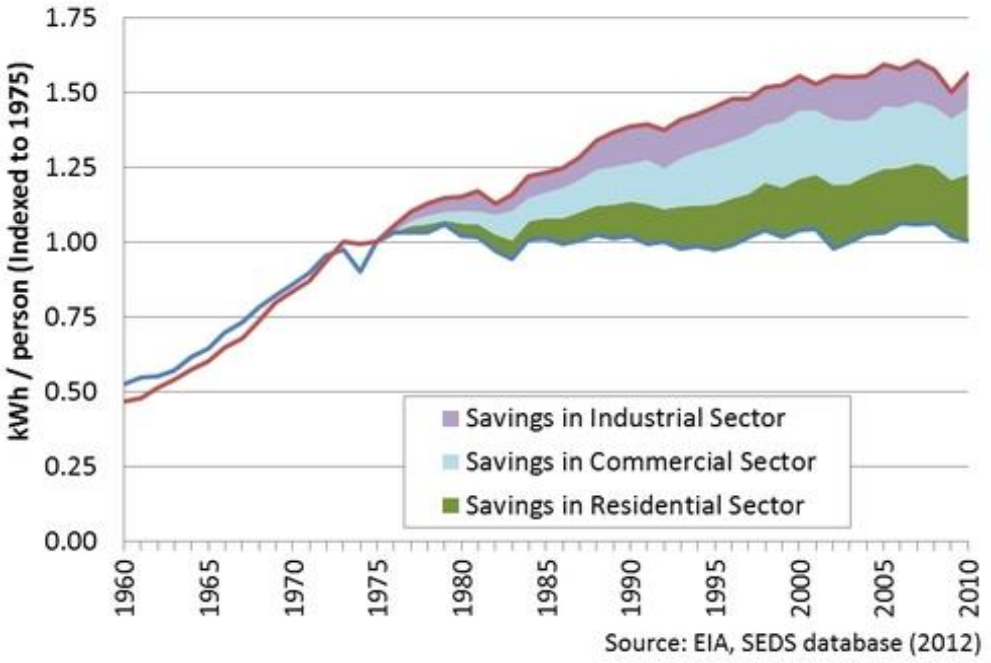
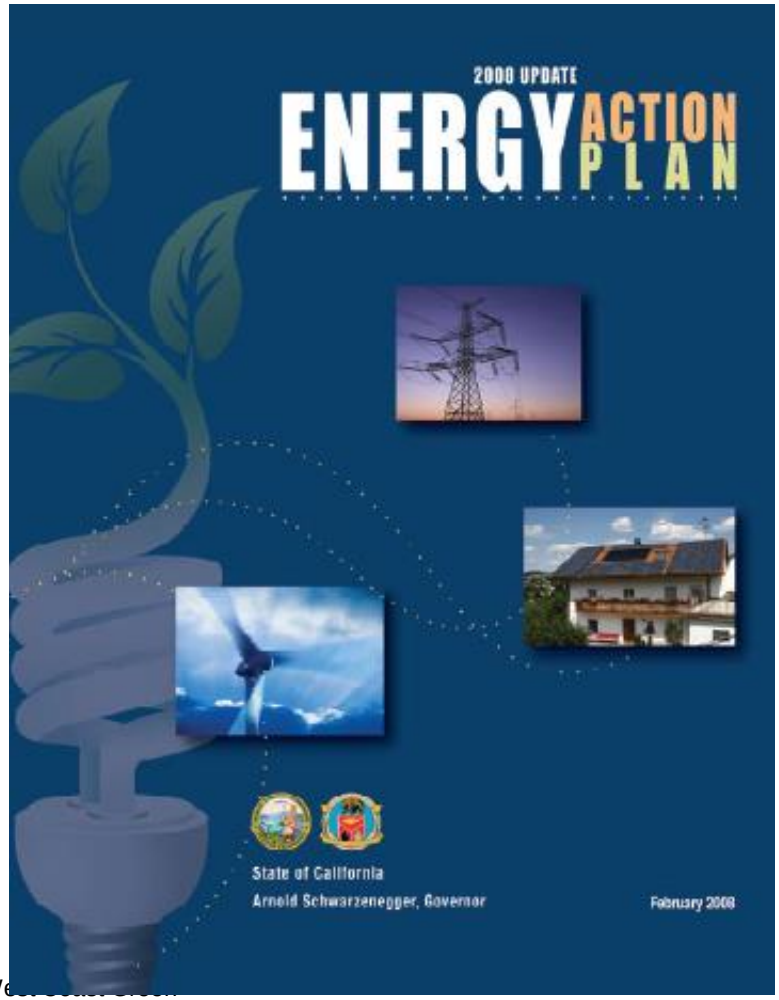




Energy Efficiency is California's Preferred Resource

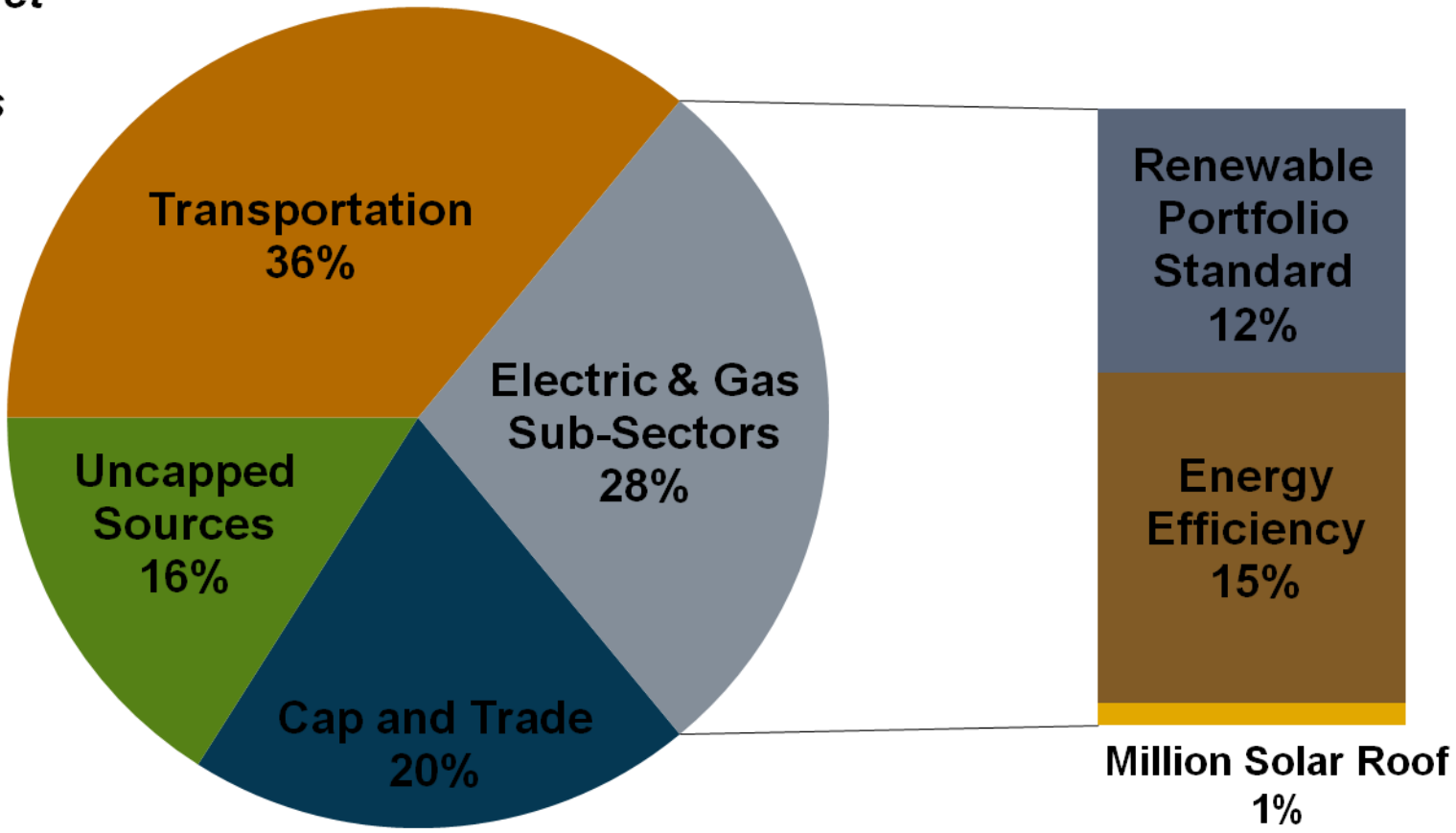


"Loading Order" of Energy Resources

- Energy efficiency and Demand response
- Distributed generation
- Renewable generation
- Cleanest available fossil resources

AB 32: California's Greenhouse Gas Emission Reduction Strategies

California's Global Warming Solutions Act Mandates 1990 Levels by 2020



Source: California Air Resources Board Scoping Plan, December 2008, Table 2.

CPUC's Approach to Energy Efficiency

Value energy efficiency as a procurement resource

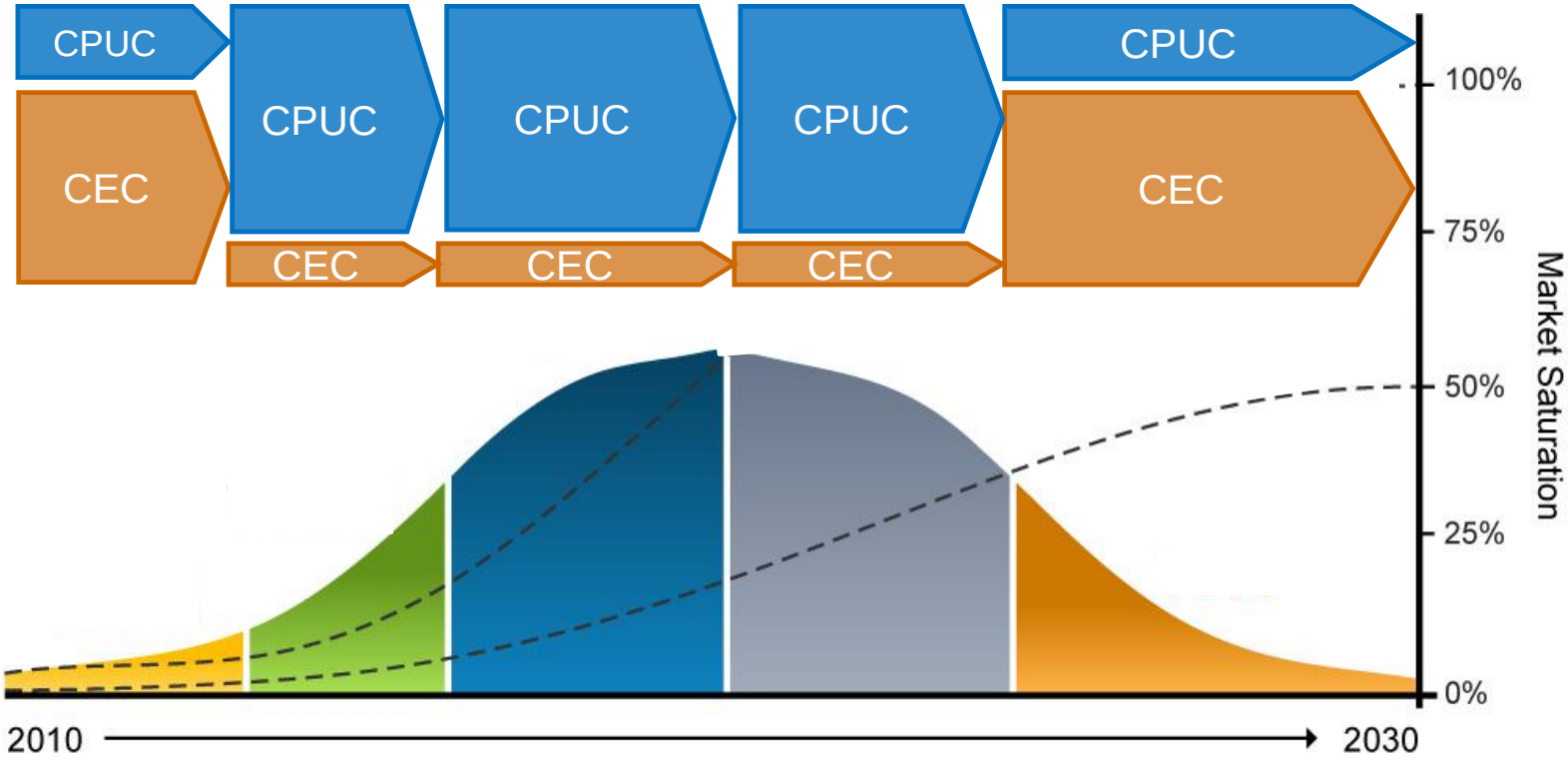
- PUC Sec 454.5 requires that IOUs "meet unmet resource needs with **all available EE** and demand reduction **that is cost-effective,** reliable, and feasible." and requires CPUC to **establish targets for the IOUs** to achieve all cost-effective electric / gas EE
- CPUC evaluates savings impacts

Support market transformation of the EE industry

- CA Strategic Plan—collaborative statewide effort to identify market barriers and develop cross-industry solutions
- Establish program design requirements for EE portfolio

CPUC policy emphasis focused on voluntary market

Historical Agency Emphasis / Mandates



Example IOU Programs

Innovators	Early Adopters	Early Majority	Late Majority	"Laggards"
Emerging Technologies	Incentives	Incentives	Incentives	Codes and Standards
ZNE Pilots	Training	Mass marketing	Financing	
	Financing	Financing		

Key IOU Program Design Requirements / Incentives

"Sticks": Legislative Requirements

- Portfolio budgets must be reviewed and approved by Commission
- IOUs must meet energy savings goals
- Portfolio must be cost effective
- Programs must meet the requirements of the portfolio guidance decision and pursue Strategic Plan objectives
- 20% of budget must be competitively bid by third party implementers

"Carrots": Utility Benefits

- Efficiency Savings and Performance Incentive (ESPI)
- IOUs get other "passive" benefits from EE programs (e.g., GHG, corporate "green-washing," customer satisfaction, etc.)

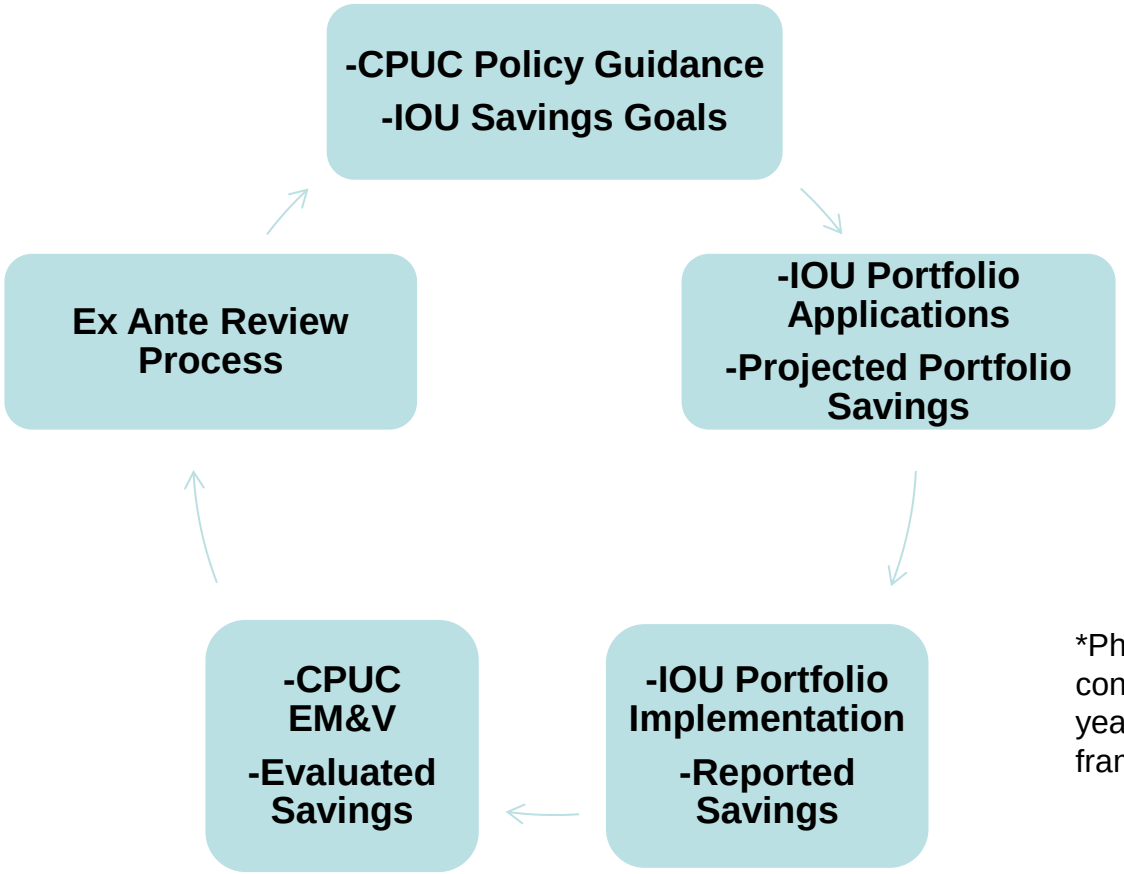
CA Power Plant Capacity Increased by only 2/3 the National Pace in the Past 20 Years

Location	1990 # of Generators	1990 Nameplate capacity (MW)	2010 # of generators	2010 Nameplate capacity (MW)	Percent capacity change
California	739	55,026	803	72,570	**31.9%**
United States	5318	783,012	6,417	1,138,638	**45.4%**

Source: U.S. Energy Information Administration, see http://www.eia.gov/electricity/data/state/

CPUC Process for Approval / Oversight of IOU EE Programs

Current 2-3 year Budget Cycle Process:



*Phase II of R.13-11-005 will consider moving away from the 2-3 year cycle to a Rolling Portfolio framework

Approval and Implementation Process for CPUC Energy Efficiency Programs

1 **Assessment and Analysis** — *Staff Consultants*

2 **Guidance Decision** — *CPUC*

3 **Portfolio Development** — *Utilities Third Parties Local Govts*

4 **Portfolio Adoption** — *CPUC*

5 **Implementation** — *Utilities Third Parties Local Govts*

6 **Feedback to next Cycle**

7 **Incentive Payments**

EE Program Characteristics*

By Delivery	Budget ($M)	Savings (GWh)
Statewide	1,166	2,027
Third Party	538	1,408
Gov't Partnerships	252	267
RENs/CCA	75	98
Local IOU	13	2
Total	2,044	3,802

By Program	Budget ($M)	Savings (GWh)
Third Party Programs	304	679
Non-Residential Custom Projects	265	647
Government Partnerships	256	267
Lighting Programs	228	890
Financing Programs	190	109
HVAC	140	221
Plug-Load and Appliances	104	229
Energy Advisor Program	100	295
Whole House Program	80	25
RENs and CCAs	75	98
Non-Residential Deemed Incentives	64	224
Workforce Education & Training	63	7
Emerging Technologies	39	0
New Construction	35	6
Codes and Standards	28	870
Direct Install	21	41
Multi-Family Rebates	17	62
Continuous Energy Improvement	14	0
Marketing, Outreach, & Education	14	0
IDSM	8	0
Total	2045	4670

By Sector	Budget ($M)	Savings (GWh)
Agricultural	79	248
Commercial	510	1,112
Industrial	211	487
Residential	328	571
Gov't Partnerships	256	267
Cross Cutting	585	1,019
Total	1969	3704

*Data from 2013-14 Portfolio Applications. Approved budget was reduced by $200 million.
Source: 2013 IOUs Compliance Filings

How EE planning studies inform the next portfolio cycle

EM&V Studies for the current portfolio → **Databases & Calculators to build the next portfolio** → **Portfolio Forecasting and Planning**

Market Studies
to determine how much EE is already installed

EE measure costs

Impact Studies
to determine how much EE was installed in this cycle and to improve ex ante parameters

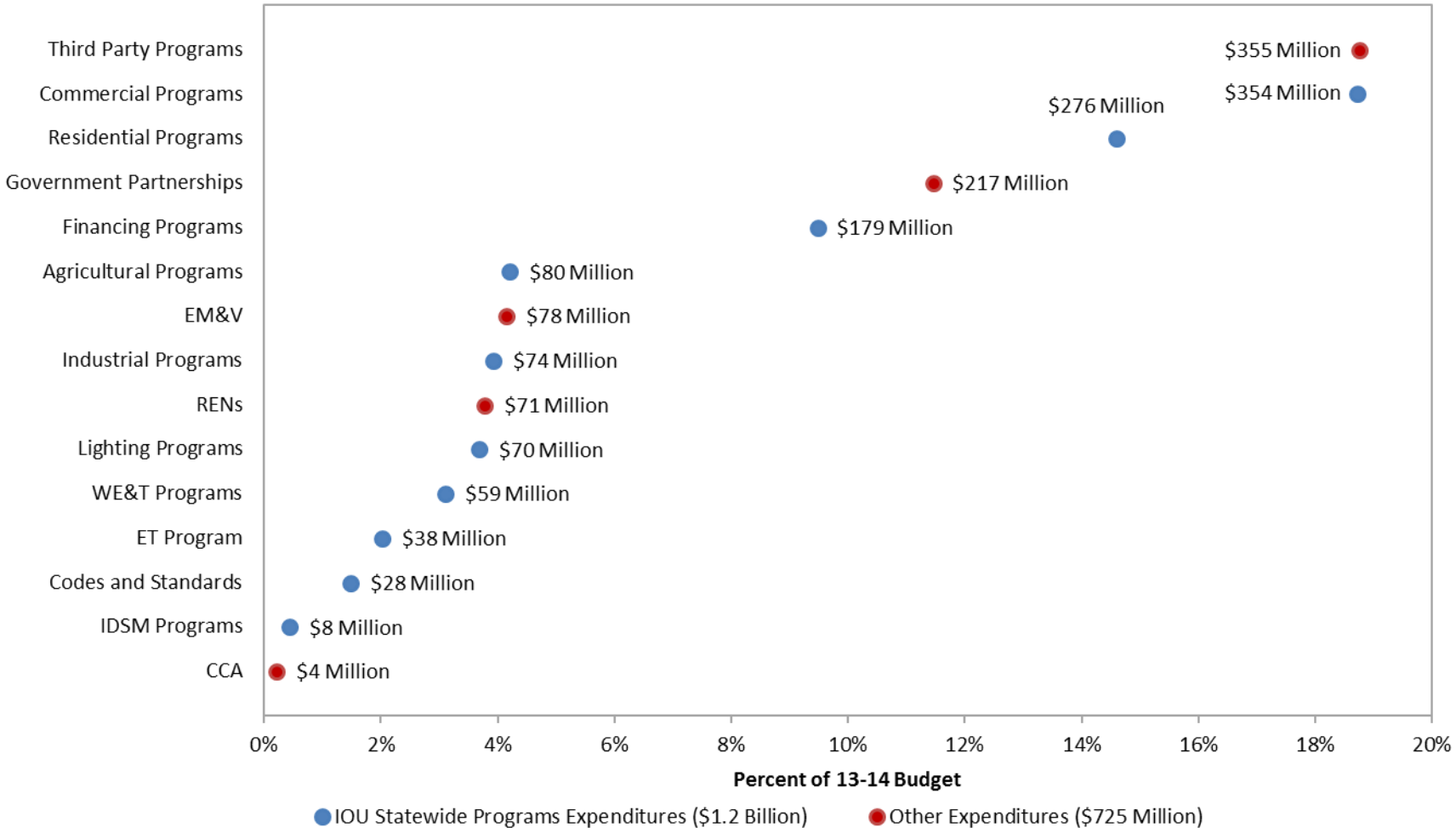
Cost Effectiveness Calculator (E3)
Calculates the avoided cost for each measure, program, and portfolio

Database of Energy Efficient Resources (DEER)
Integrates past evaluation results and new data with model simulations to determine savings, cost, expected life for each measure

Potential, Goals & Targets
Calculates projected savings for each measure, sector and IOU and sums for total EE potential

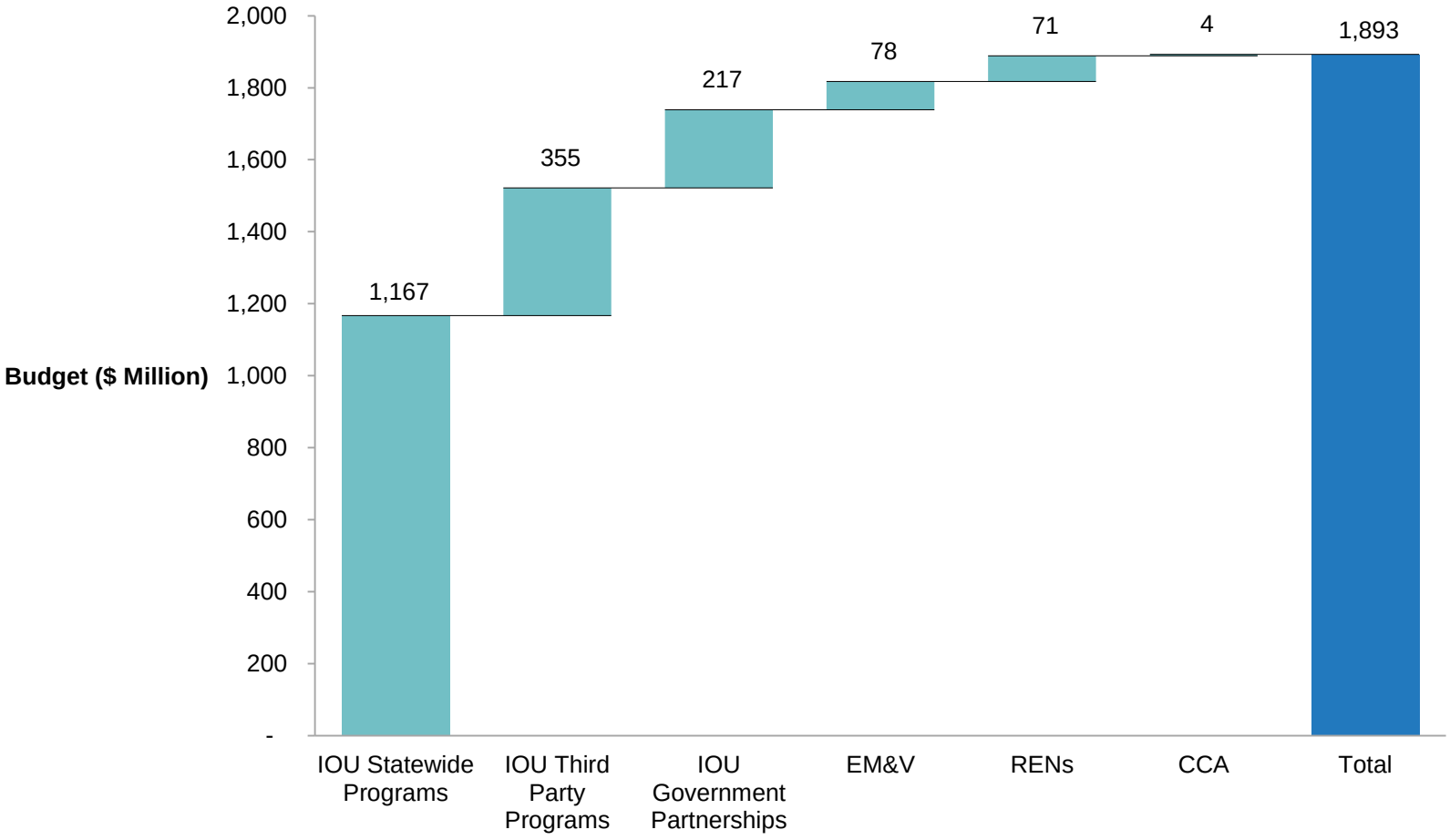
- **IOU Portfolio Filing**
- **Integrated Energy Policy Report Demand Forecast**
- **Long Term Procurement Planning**

2013-14 EE Portfolio Organization



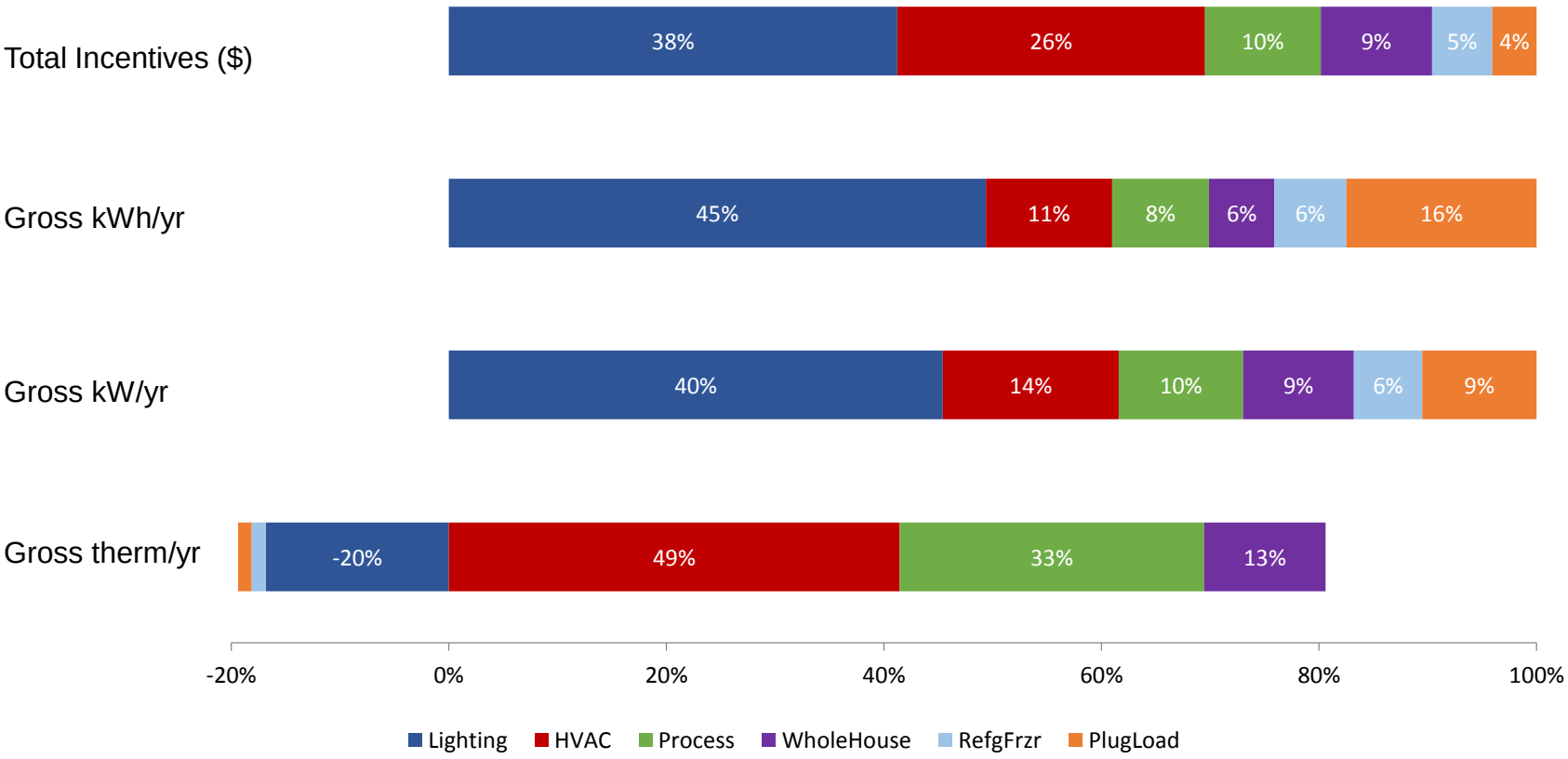
Source: 2013 IOUs Compliance Filings

2013-14 EE Portfolio Organization



Source: 2013 IOUs Compliance Filings

2013 EE Incentives and Gross Savings by End-Use



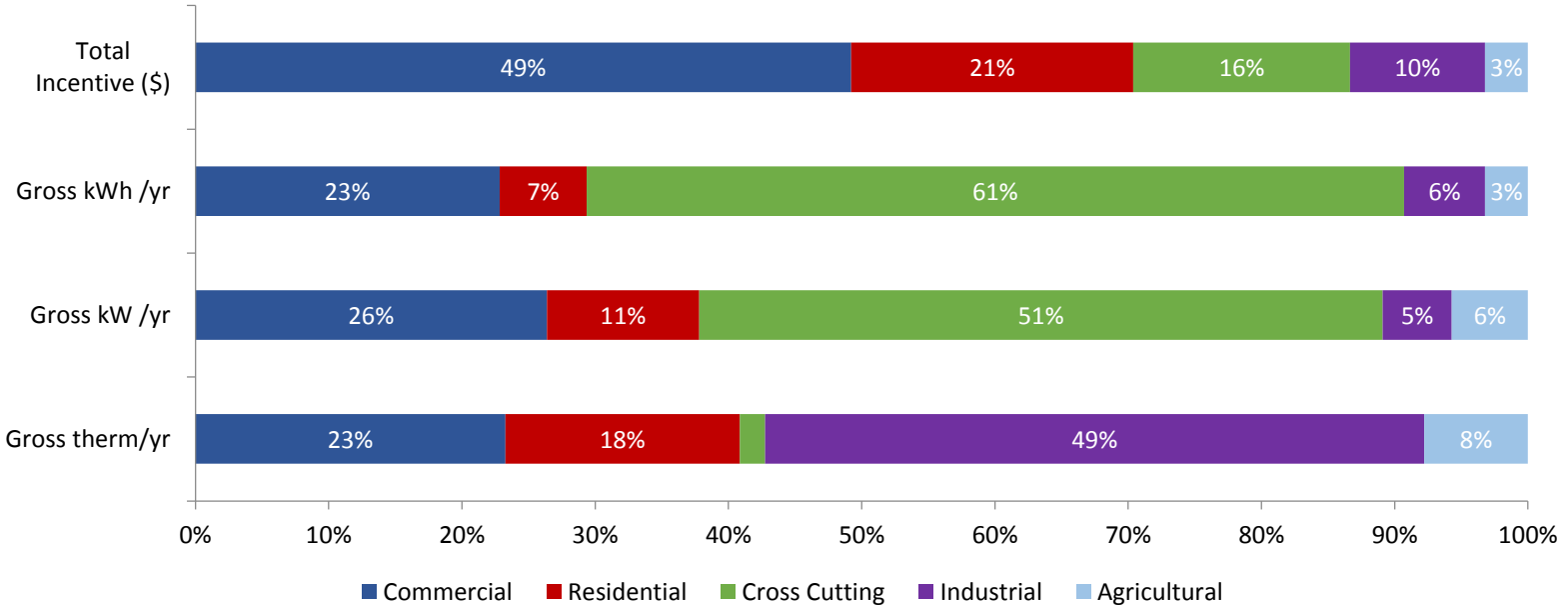
Source: 2013 IOUs Compliance Filings

2013 EE Incentives and Gross Savings by End-Use

End Use	Gross therm/yr	Gross kW /yr	Gross kWh /yr	Total Incentive ($)
Lighting	-10,718,357	223,724	1,592,935,727	$128,103,906
HVAC	26,370,014	79,716	374,306,179	$87,856,290
Process	17,803,837	56,316	287,470,672	$33,055,965
WholeHouse	7,112,032	50,135	193,955,423	$31,778,160
RefgFrzr	-826,463	30,943	213,542,753	$17,245,438
PlugLoad	-792,741	51,768	564,244,297	$12,615,823
SHW	5,972,187	358	2,629,034	$9,407,214
Shell	4,213,651	11,427	58,495,794	$5,528,899
Pool	962,141	21,026	107,625,186	$4,414,578
Oil	1,555,575	1,041	11,910,729	$2,291,795
Misc	0	1	0	$1,474,783
Cook	1,649,346	1,039	6,244,827	$1,430,269
C&S	319,266	26,091	111,256,378	$0
Total	53,620,490	553,585	3,524,616,999	$335,203,119

Source: 2013 IOUs Compliance Filings

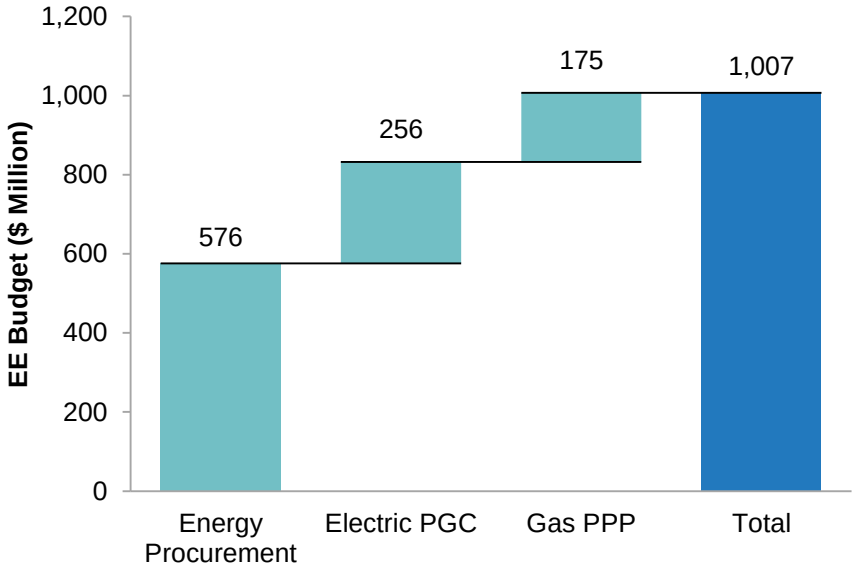
2013 EE Incentives and Gross Savings by Sector

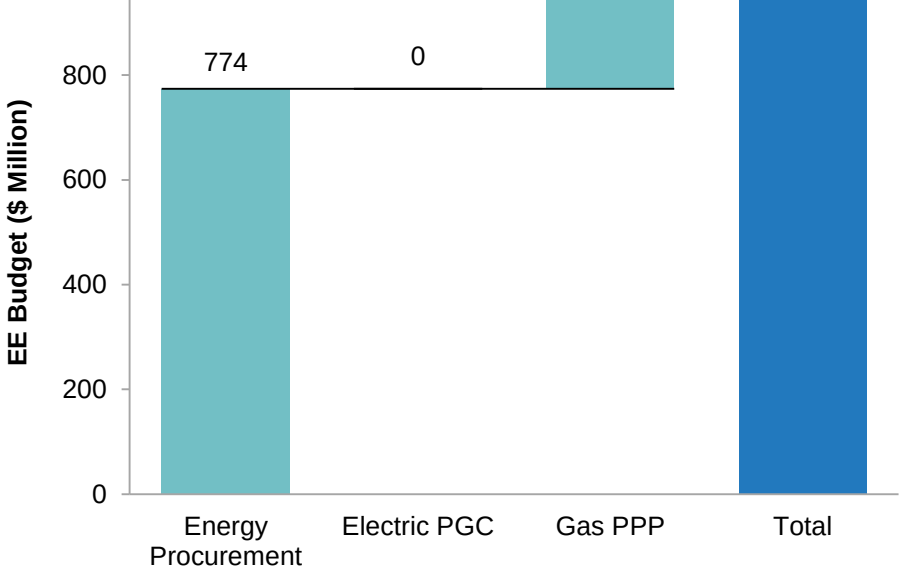


Sector	Gross therm/yr	Gross kW /yr	Gross kWh /yr	Total Incentive ($)
Commercial	12,474,614	146,039	804,751,119	$164,954,368
Residential	9,427,084	63,295	230,354,031	$70,989,456
Cross Cutting	1,027,654	283,955	2,161,571,778	$54,521,707
Industrial	26,517,870	28,649	214,783,737	$33,908,657
Agricultural	4,173,268	31,647	113,156,333	$10,828,931
Total	53,620,490	553,585	3,524,616,999	$335,203,119

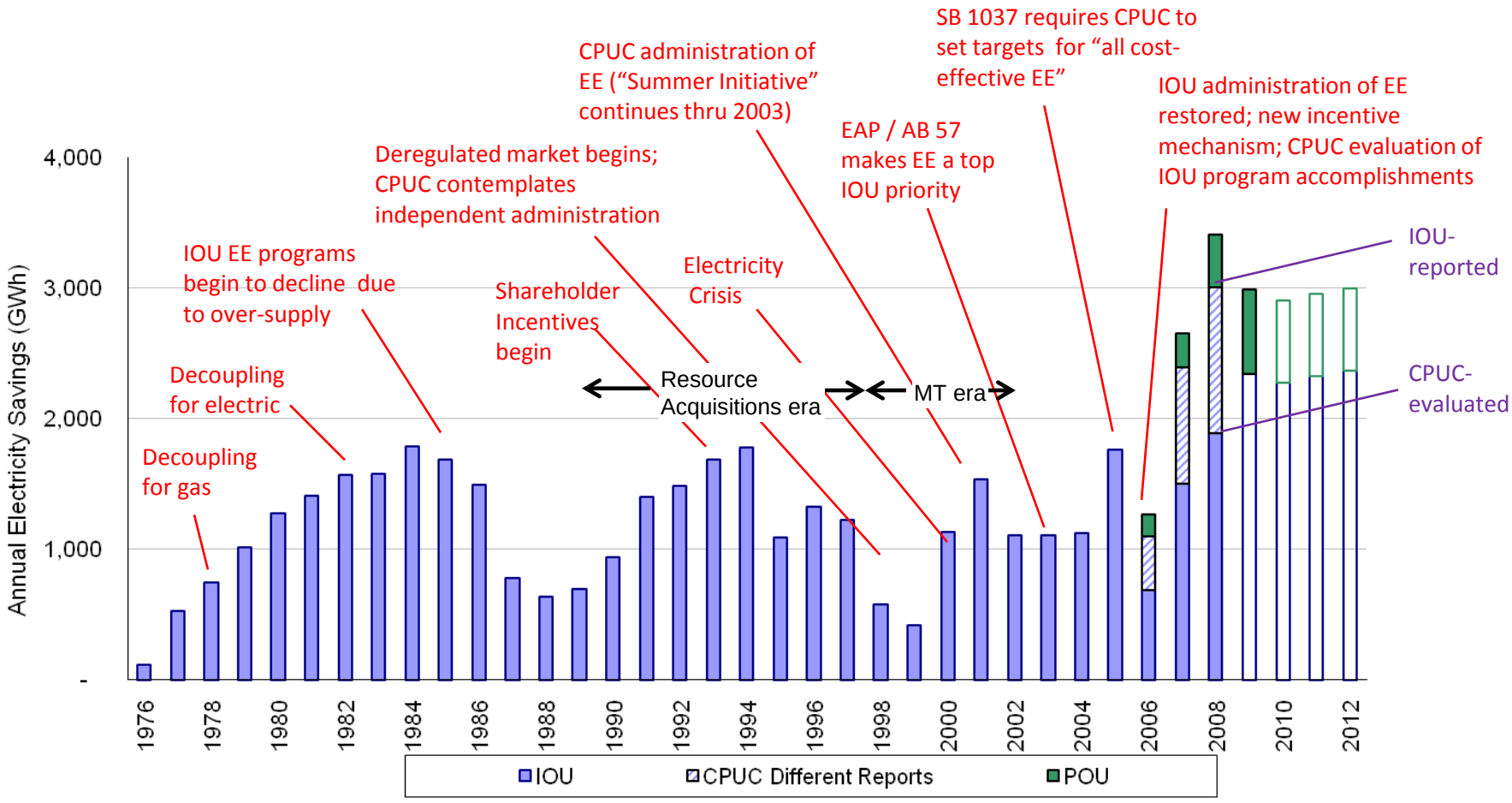
Source: 2013 IOUs Compliance Filings

Funding Sources for Mainstream IOU Energy Efficiency Programs





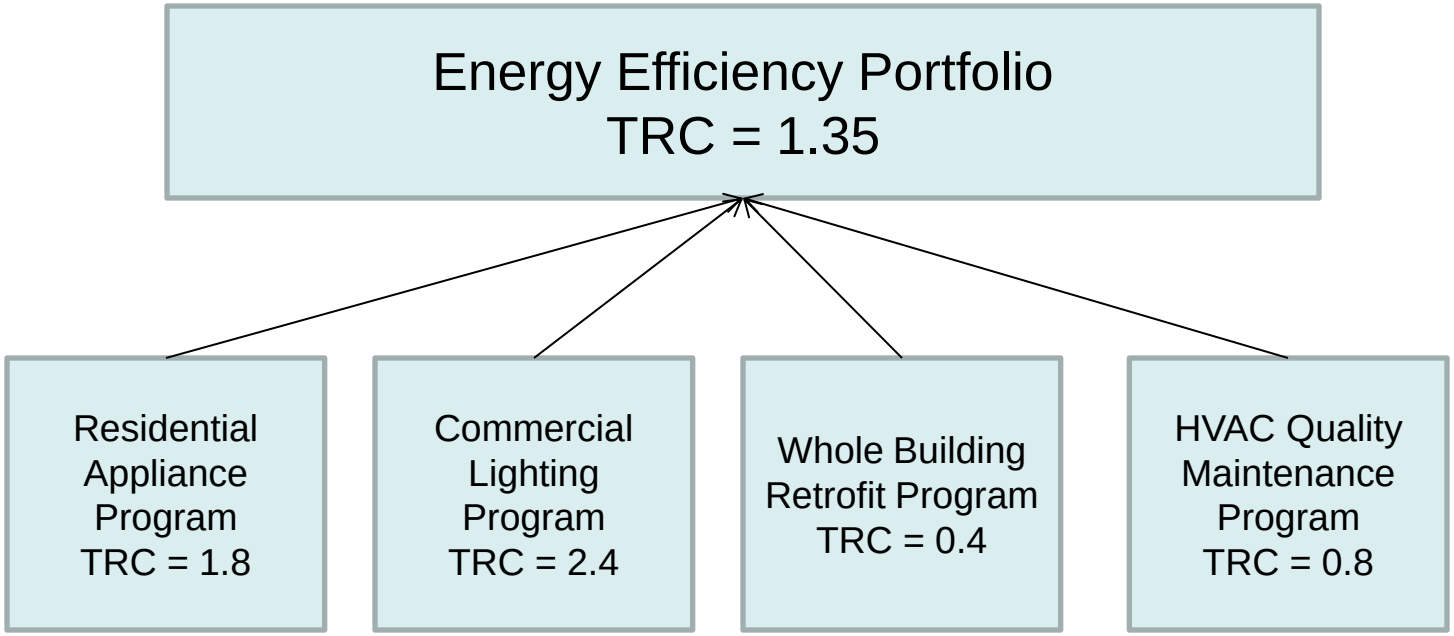
Policy Influences EE Savings Among California Utilities



Source: Natural Resources Defense Council (NRDC), as modified by Energy Division 12/2012
Data is not available for post 2008, only estimated potential are available.

Cost-Effectiveness

CPUC determines EE cost-effectiveness at the portfolio-level and on a "net" basis



*Example TRCs are illustrative

EE Cost-Effectiveness Tests

Standard Practice Manual

- Program Administrator Cost (PAC): Program Administrators
- Total Resource Cost (TRC): Program Administrators and Participants

For EE Portfolio Approval

- Ratepayer Impact Measure (RIM): Ratepayers
- Participant Cost Test (PCT): Program Participants

Ratepayer-funded EE programs have provided a Commission-estimated $1.8 billion of net benefits (TRC) over the past 9 years.

	TRC			PAC		
$ Millions	**Net**	**Benefits**	**Costs**	**Net**	**Benefits**	**Costs**
2006-2008 Evaluated	352	2,886	2,534	1,076	2,886	1,810
2009 Evaluated	486	1,523	1,037	821	1,523	702
2010-2012 Forecast	469	3,598	3,129	1,150	3,598	2,448
2013-2014 Forecast	478	2,388	1,910	1,216	2,388	1,172
Total	1,785	10,395	8,610	4,263	10,395	6,132

Source:
Table 2, page viii, 2006-2008 Evaluation report: ftp://ftp.cpuc.ca.gov/gopher-data/energy%20efficiency/2006-2008%20Energy%20Efficiency%20Evaluation%20Report%20-%20ES.pdf
Table 2, page 4, 2009 Evaluation Report: http://www.cpuc.ca.gov/NR/rdonlyres/D66CCF63-5786-49C7-B250-00675D91953C/0/EEEvaluationReportforthe2009BFPeriod.pdf
proxy estimates from D.09-09-047, page 4, page 71 (Table 4)
proxy estimates from D.12-11-015, page 100 and 103, ex ante 13-14 compliance tool

Standard Practice Manual (SPM) Cost Tests

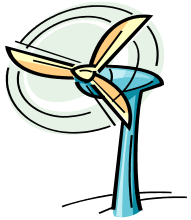
Cost Tests	Key Questions	Summary Approaches
TRC Total Resource Cost	What are the program impacts to the participants and program administrator?	Comparison of program administrator and customer costs to utility resource savings
PAC Program Administrator Cost Test	What are the program impacts to the program administrator?	Comparison of program administrator costs to supply side resource costs
PCT Participant Cost Test	Will the participants benefit over the measure life?	Comparison of costs and benefits of the customer installing the measure
RIM Ratepayer Impact Measure	Will utility rates increase?	Comparison of administrator costs and utility bill reductions to supply side resource costs
SCT Societal Cost Test	Is the utility, state, or nation better off as a whole?	Comparison of society's costs of energy efficiency to resource savings and non-energy costs and benefits

Summary of Costs and Benefits

Component	TRC	PAC	PCT	RIM
Administrative costs	Cost	Cost		Cost
Avoided costs of supplying energy	Benefit	Benefit		Benefit
Bill reductions			Benefit	
Capital cost to participant	Cost		Cost	
Capital cost to utility	Cost	Cost		
Environmental benefits (GHG only)	Benefit		Benefit	Benefit
Incentives paid		Cost		Cost
Increased supply cost	Cost	Cost		Cost

Avoided Cost Calculator

- Energy
- Ancillary Services
- Renewable Portfolio Standard
- Greenhouse Gas
- Generation Capacity
- Transmission & Distribution Capacity



Basics of the Net-to-Gross Ratio

Accounts for influences other than the desire to achieve energy savings on participants decisions.

Applied on the benefits and costs side to eliminate the energy savings and costs related to free-ridership.

Key factors addressed

- Free-ridership
- Underlying participant motivations (including non-energy reasons)
- Persistence/Failure

EE Goals

Potential and Goals (P&G) Study

Assesses potential energy savings above code to be captured by IOU programs and estimated savings from codes & standards

Technical Potential

Assessment of total energy savings available by end use and sector, relative to the baseline of existing energy uses

Economic Potential

Assessment of cost-effective EE potential available

Market Potential

Assessment of EE expected to be adopted with IOU incentives

Avoided Costs of measures (E3 Calculator)

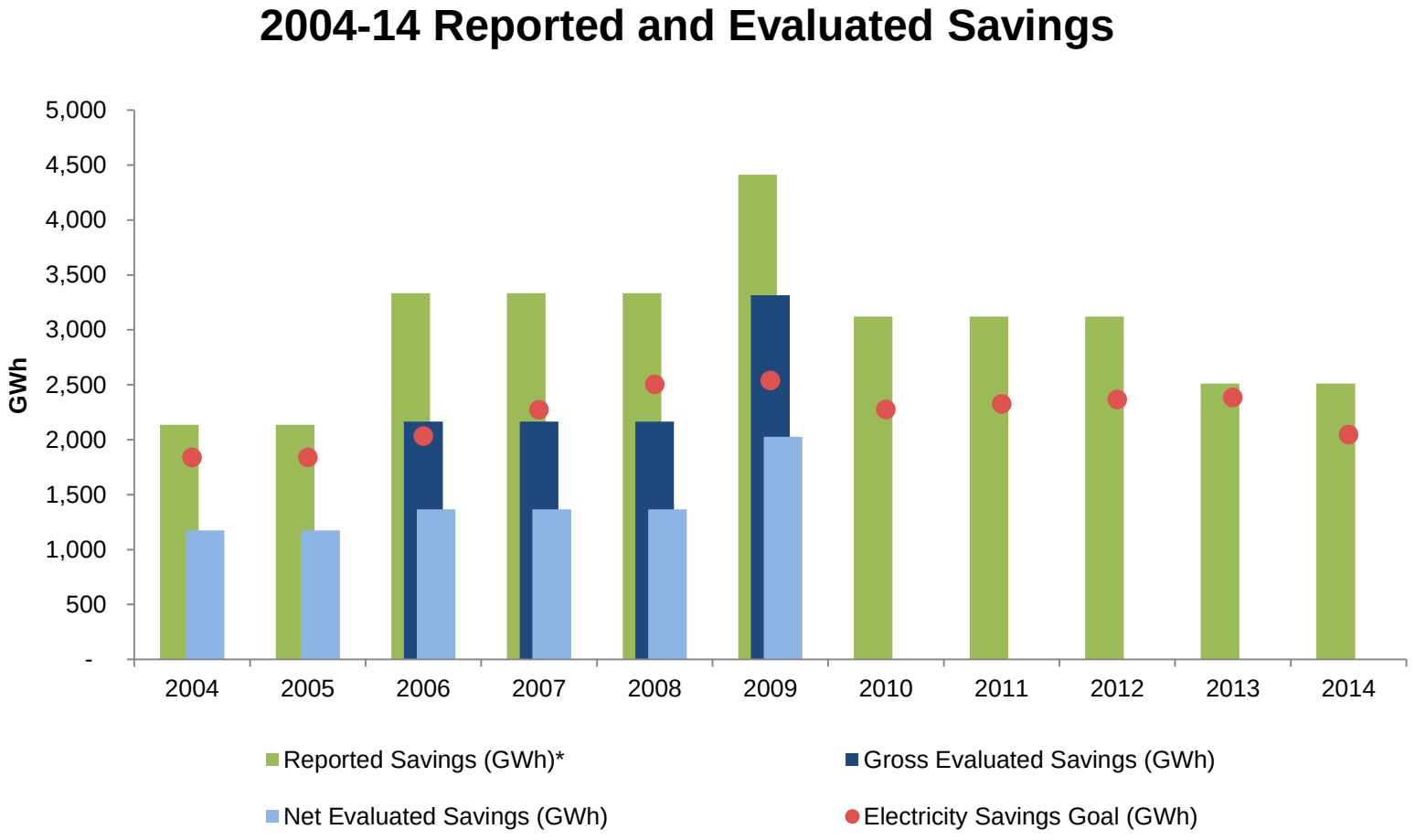
Market Adoption Rates based on policy drivers:

- Rebates
- Codes & Standards
- Financing
- AB 758

Establishes Goals & Scenarios for Incremental Savings Forecast

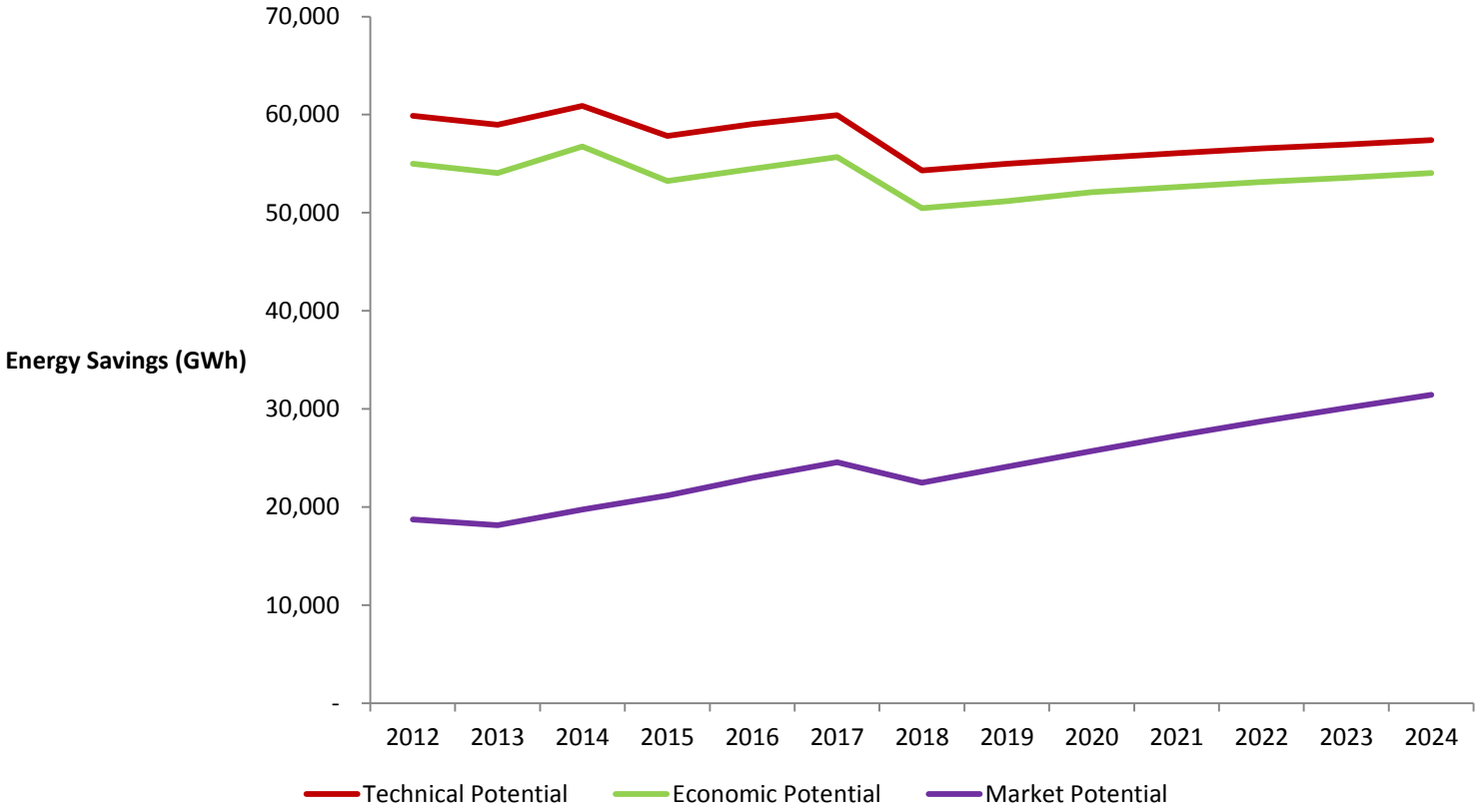
Model is disaggregated by climate zone & building type

2004-2014 Savings vs. Goals



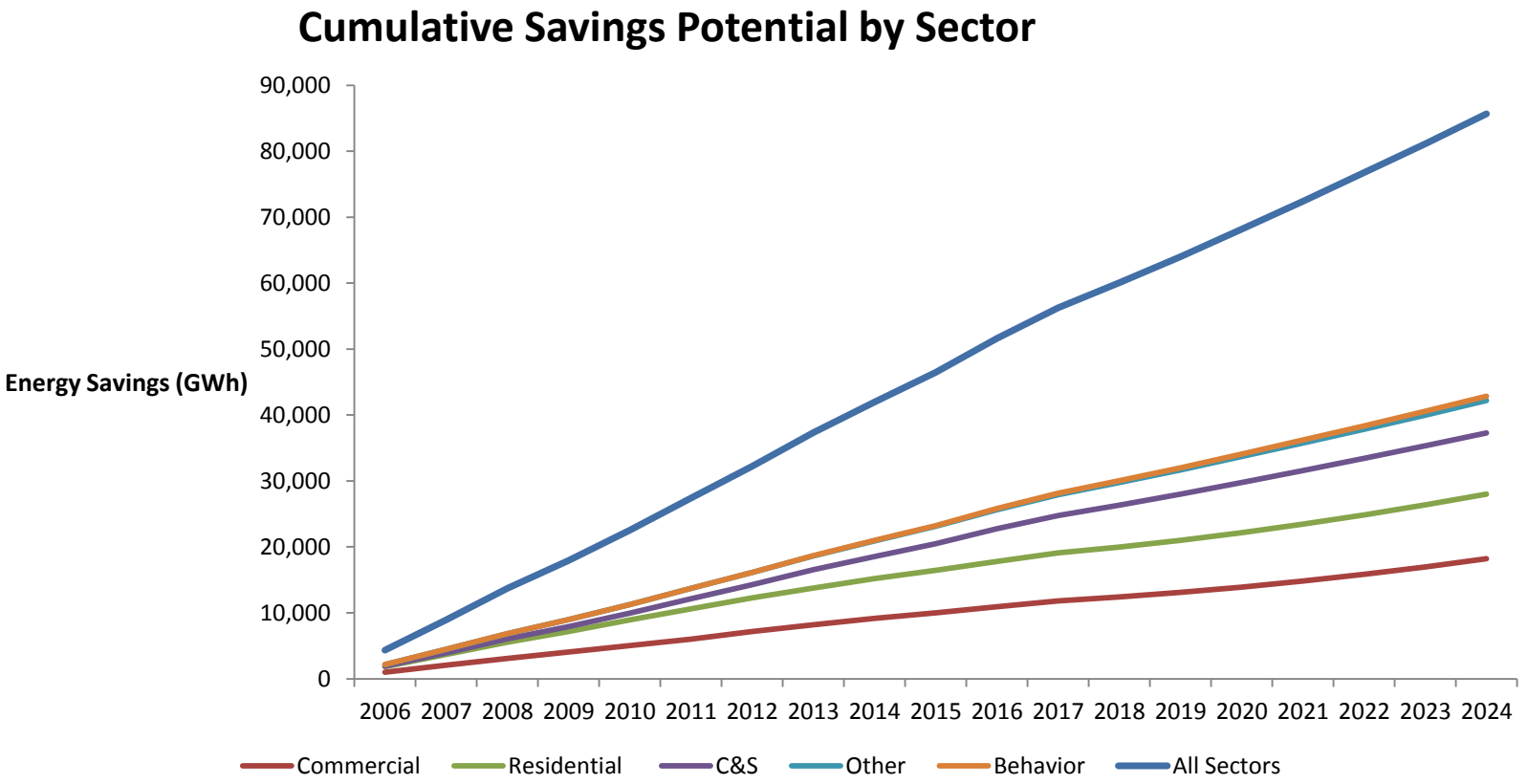
* 2004-05 reported savings are net; 2006-12 are gross; 2013-14 are projected

Cumulative Technical, Economic and Market Potential in the 2013-14 Potential Study



Source: Navigant, 2013 Goals & Potential Study

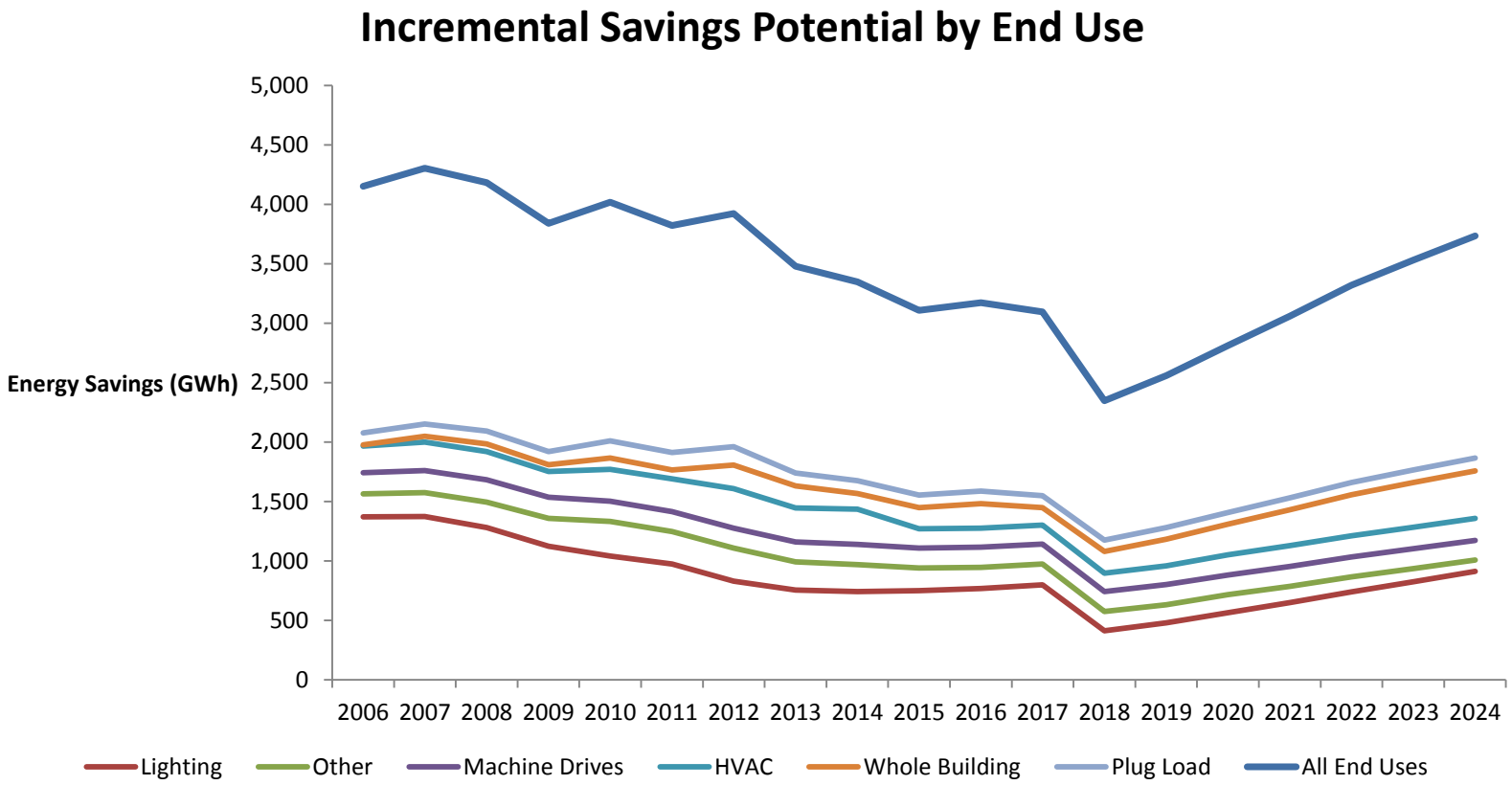
Potential Study: Commercial Sector has the greatest growth



Other includes Industrial, Agricultural, Mining, and Street Lighting

Source: Navigant, 2013 Goals & Potential Study

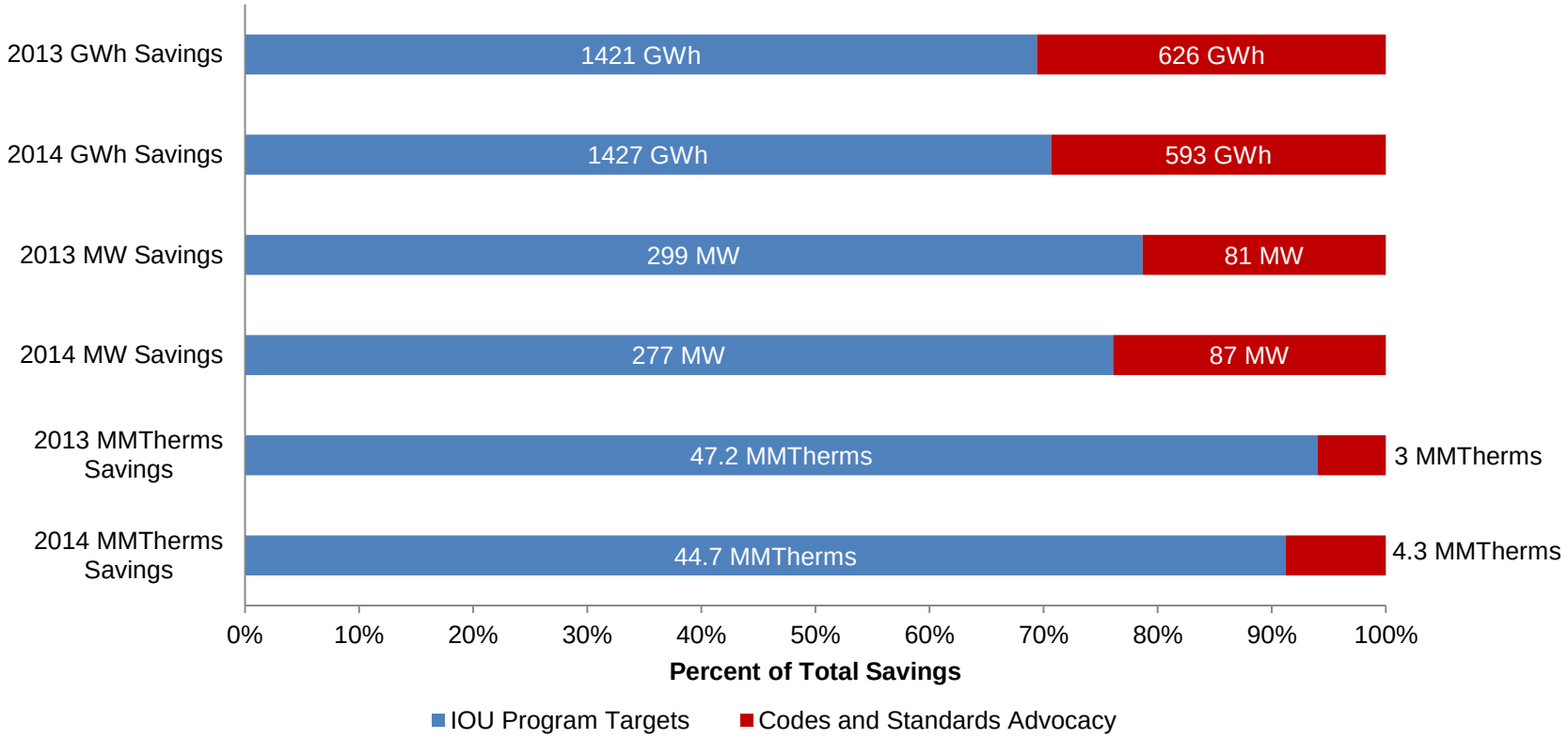
Lighting market potential diminishes because of Huffman Bill and Title 24 code updates



Other includes service hot water, commercial refrigeration, food service, service, mining end uses, street light end uses, building envelope, process, and low income

Source: Navigant, 2013 Goals & Potential Study

IOU 2013-14 EE Goals



Source: 2013 IOUs Compliance Filings

Shareholder Incentives

Recent Shareholder Incentives

2006-08

- Shared savings rate based on goals accomplishment
- Performance basis based on ex post net benefits
- Payments based on ex ante

2010-12

- ALJ PD – No incentives
- Alternate PD – Management fee with performance bonus tied to ex ante review

2013-14

- Multi-component mechanism using ex ante and ex post benchmarks

Caps and Estimated Payments

Component	Cap	Total Cap Value	Estimated Payments
Energy savings performance award	9% of resource program budget (minus C&S)	$126.85M	$85.32M
Ex ante review performance award	3% of resource program budget (minus C&S)	$42.3M	$23.99M
Codes & Standards (C&S) program management fee	12% of C&S program budget	$2.98M	$2.98M
Non-resource program management fee	3% of non-resource program budget	$6.3M	$6.3M
Total	11% of EE portfolio budget	$178.42M	$118.59M

Energy Savings Earnings Coefficients

Energy Unit	Adopted Goals	x	NTG	x	EUL	=	Net Lifecycle Goals
Electricity Savings (GWh)	2,848.0	x	0.8	x	12	=	27,340
Peak Savings (MW)	576.0	x	0.8	x	12	=	5,530
Gas Savings (w/ IE) (MMtherms)	91.9	x	0.8	x	15	=	1103

Energy Unit	Allocated Budget	÷	Net Lifecycle Goals	=	Statewide Earnings Coefficients
Electricity Savings (GWh)	$69,047,117	÷	27,340	=	**$ 2,525**
Peak Savings (MW)	$34,282,037	÷	5,530	=	**$ 6,200**
Gas Savings (w/ IE) (MMtherms)	$23,524,076	÷	1103	=	**$ 21,331**

Ex Ante and Ex Post Savings Calculation

Ex Ante	• Used for measures with a high level of confidence in the savings parameters • Currently represents ~30% of savings
Ex Post	• Used for custom projects/measures and measures that are considered "uncertain" • Currently represents ~70% of savings

"Uncertain" measures are those where the net lifetime savings of the *current estimate may be as much as 50% or more under- or over-estimated*.

EM&V Activity Timing and ESPI

Program Year	
October 31:	Post draft EM&V Plans and Uncertain Measure List
December 31:	Post final EM&V Plans

Program Year +1	
December 31:	Post draft final EM&V Reports

Program Year +2	
January 15:	Hold conference to discuss draft final EM&V Reports
March 15:	Deadline for parties to submit a dispute
March 31:	Post draft Savings Performance Statement (SPS)
April 15:	Hold conference to discuss each IOU's SPS (August 15 if disputed)
April 30:	Deadline for written comments on SPS (August 31 if disputed)
May 31:	Post Final SPS (September 30 if disputed)
June 30:	IOUs file Advice Letter for ex post savings incentive award October 30 if disputed)

Ex Ante / Ex Post

Ex Ante vs. Ex Post Savings Estimates

Ex Ante

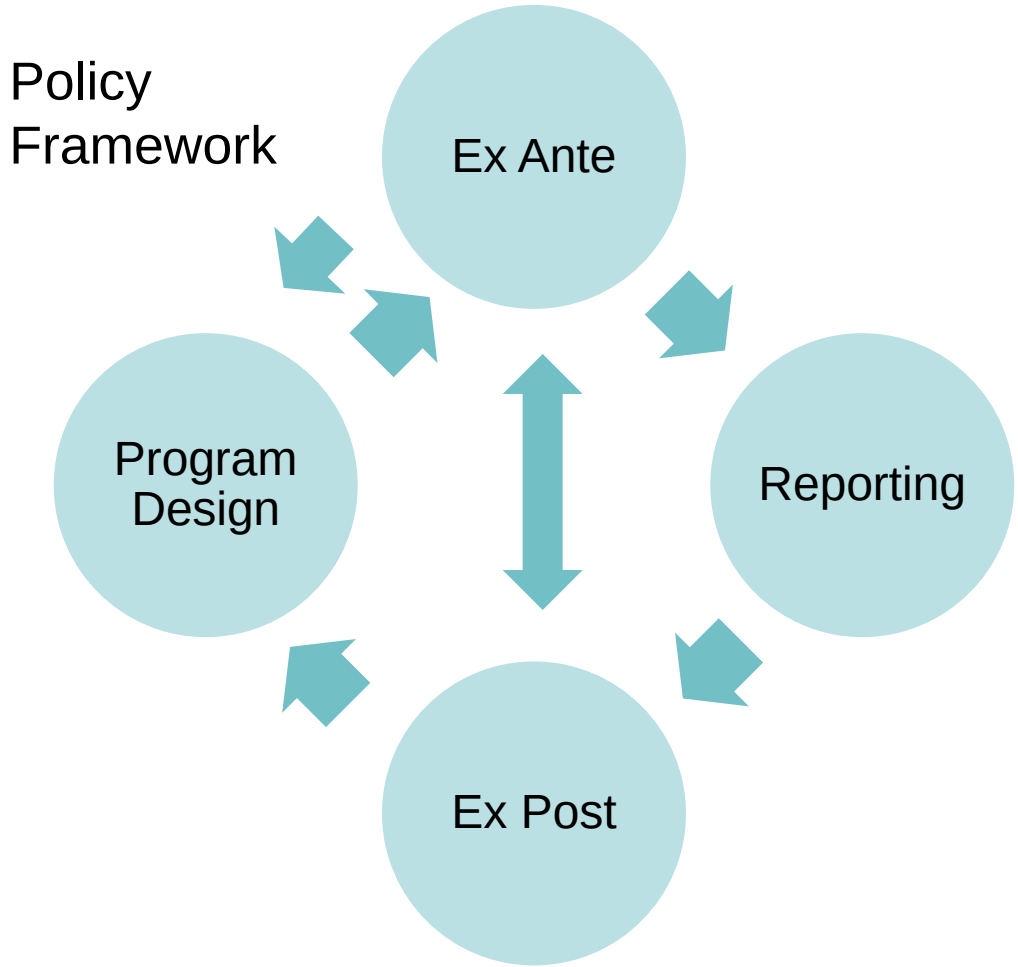
- Estimate of savings before measure installation based on predictions of average operating conditions and baseline
- Include deemed (DEER and workpapers) and custom
- Basis for shareholder incentive payments
- Utility reported values

Ex Post

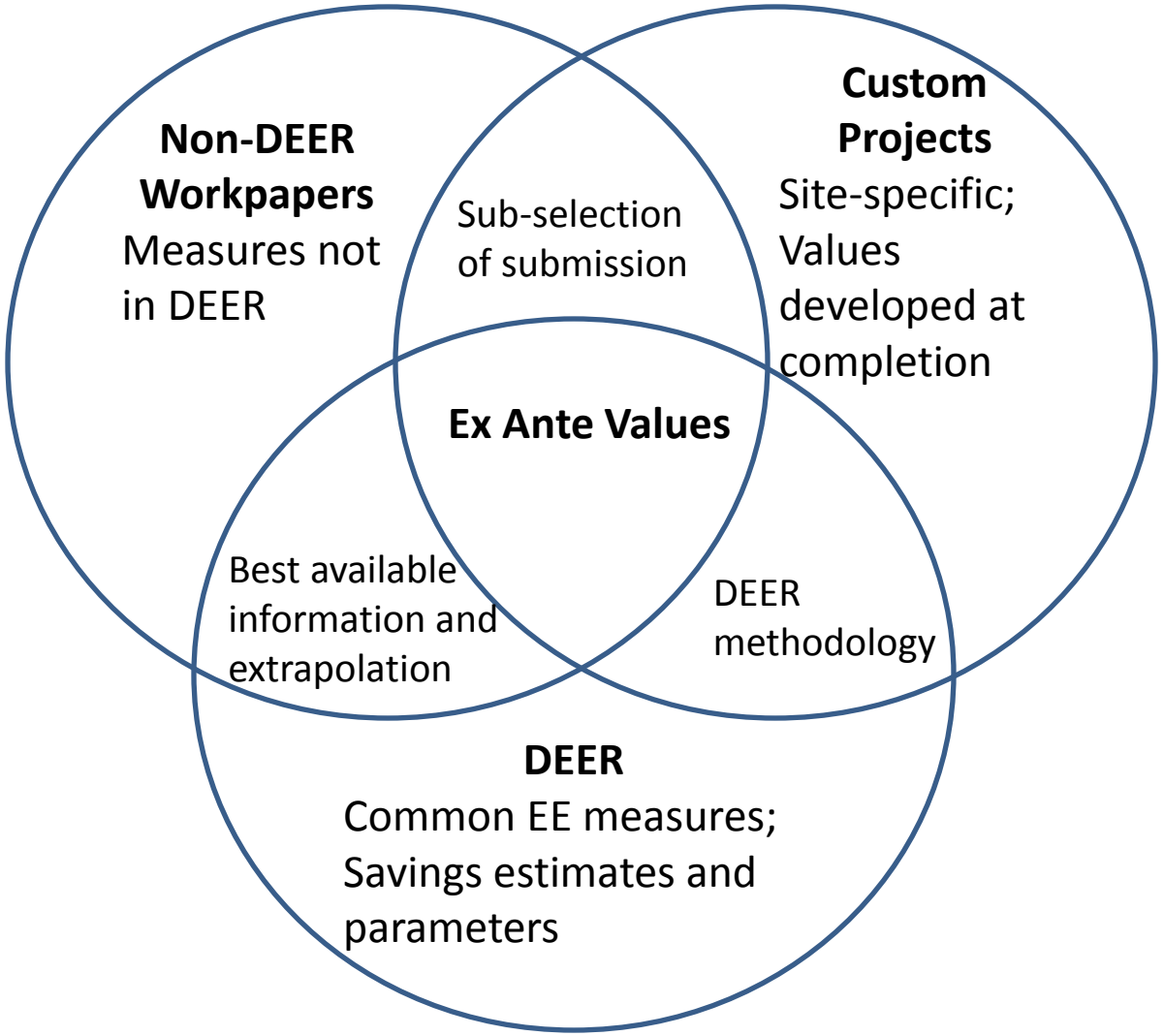
- Estimate of savings after measure installation
- Based on review of measure performance in situ or
- Other field-based observations and analysis
- Energy Division evaluated values

Both require counterfactual assumption of what would have happened in the absence of the program

Ex Ante and Ex Post



Ex Ante Review



DEER (Database for Energy Efficient Resources)

Inputs

- Current DEER
- Non-DEER measures
- EM&V
- C&S updates
- Measure additions and deletions

Planned Updates

- DEER2013 Mid-cycle
- DEER2014

Outputs

- Frozen ex ante values
- Claims and incentives
- Goals and Potential Model

Non-DEER Workpaper Review

Inputs

- DEER values and methods
- Latest EM&V studies
- Best available information

Process

- Timeline in guidance decision (D.12-05-015 for 14-14 portfolio)
- High impact measures

Outputs

- Frozen ex ante values
- Maybe incorporated into DEER in the future
- Claims and incentives

Custom Projects Review

CPUC Staff	• General Review
Review Selection	• 10-12 cycle, 2% of projects selected
Selection Criteria	• Size, sector, etc.
Staff & IOU	• Pre-Installation Review
IOU	• Post-Installation Review

Evaluation Measurement and Verification (EM&V)

EM&V Objectives

Measure & Verify Savings

- for load impact and procurement planning

Program Evaluation

- for timely performance feedback, improvement

Market Assessment

- for determining baseline, remaining potential, goal-setting

Policy and Planning Support

- such as goals studies, DEER database, market transformation insight, and other overarching studies outside of core EM&V

Financial and Management Audit

- ensures adherence to CPUC requirement for efficient and effective use of funds (e.g. administrative and marketing cost caps, prudency, etc.)

Application of EM&V results to future portfolio design

Increasing reliability of future savings estimates	• Updating program planning values in order to create more accurate ex-ante projections of likely savings in the next program cycle • Making procurement demand forecast estimates more accurate
Improving program efficacy	• Providing performance information to program administrators • Identifying measures that are not cost-effective for removal or reduction in the portfolios • Improving program processes and implementation so delivery inefficiencies are reduced or eliminated • Developing feedback on new programs or measures for which good data does not yet exist
Providing market feedback	• Assessing the potential for remaining energy savings • Monitoring changing market conditions to inform program design • Constructing trend data on target markets for use in strategic planning and guidance for the next cycle

Impact Evaluation Objective

Verify energy savings via field research

How many units got installed?

What savings were achieved

Did the program cause the action?

Installation Rate

Unit Energy Savings (baseline, operating hours, peak effects, expected life)

Net to Gross Ratio (other factors influencing decision making)

Evaluation Results and Recommendations

-Data and results used to update estimates

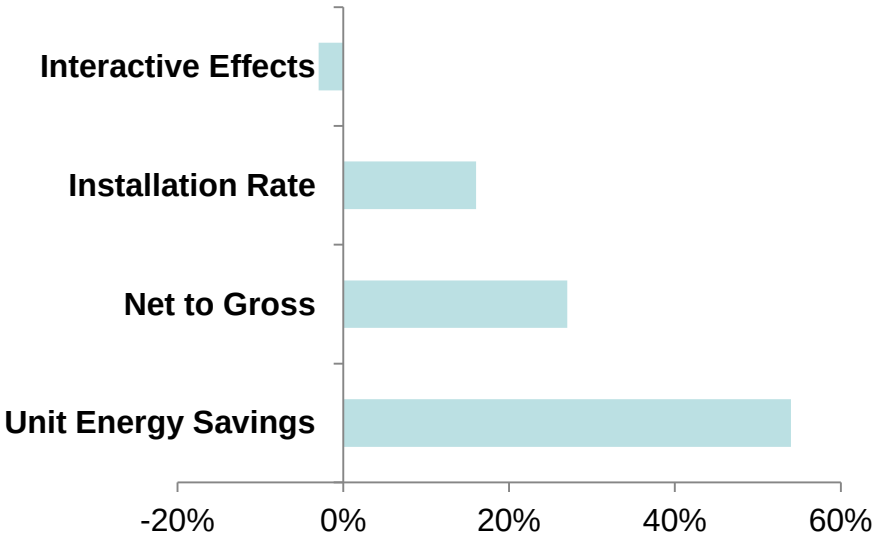
-Summarize evaluation-based accomplishment (load forecasting, CARB reports, etc.)

-Feedback for program design improvements and future estimates)

Example Evaluation Based Updates in the 2006-2008 Program Period

The evaluation activities gathered **new information from the field** about actual field conditions and customer behavior**.**

Based on evaluated results 70% of the electric savings goal was achieved



Portion of change in savings claim attributable to evaluation findings

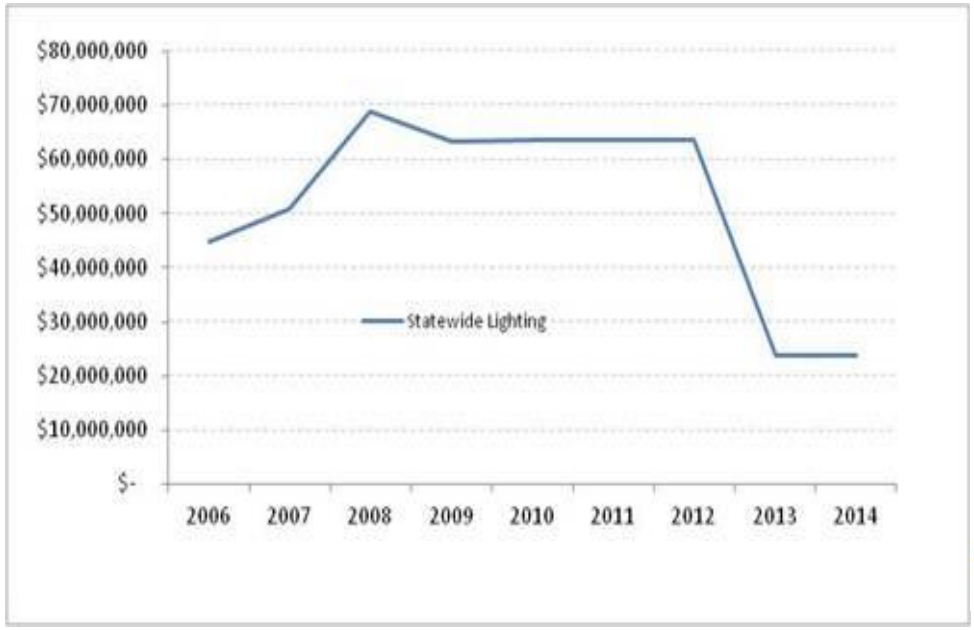
-3%	• Reduced heating needs due to improved efficiency
16%	• Where and how blubs were installed
27%	• The influence of the program, in capturing the savings
54%	• What equipment was replaced and the hours of use

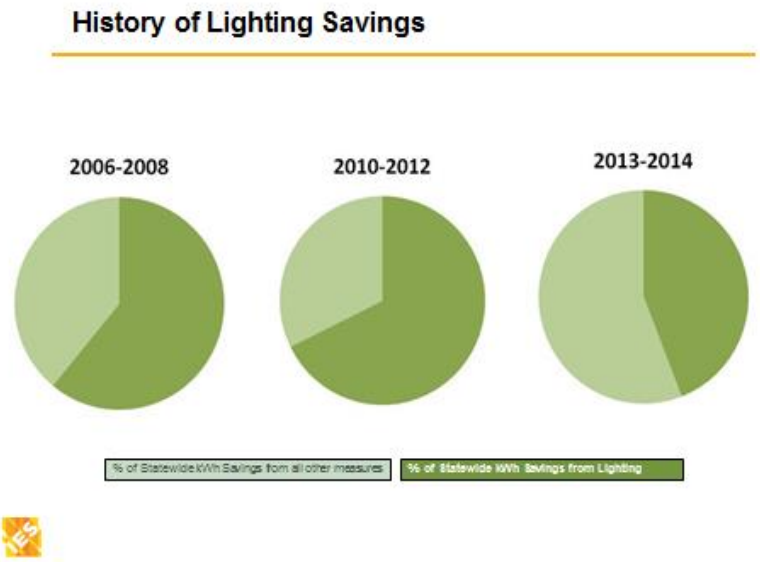
New Approaches to EM&V Administration

New Approaches

- EM&V Work Plan and Long Term Research Plans – a living document developed in close collaboration with IOUs
- Evaluation needs integrated efficiently into multi faceted studies
- Studies implemented on staged, rolling basis
- Stakeholder input scheduled including dispute resolution structure
- Prime contractor administrative structure to ensure consistency across sampling methodologies , identify study synergies, eliminate redundancy

Evaluation Driven Changes to EE Programs





Strategic Plan

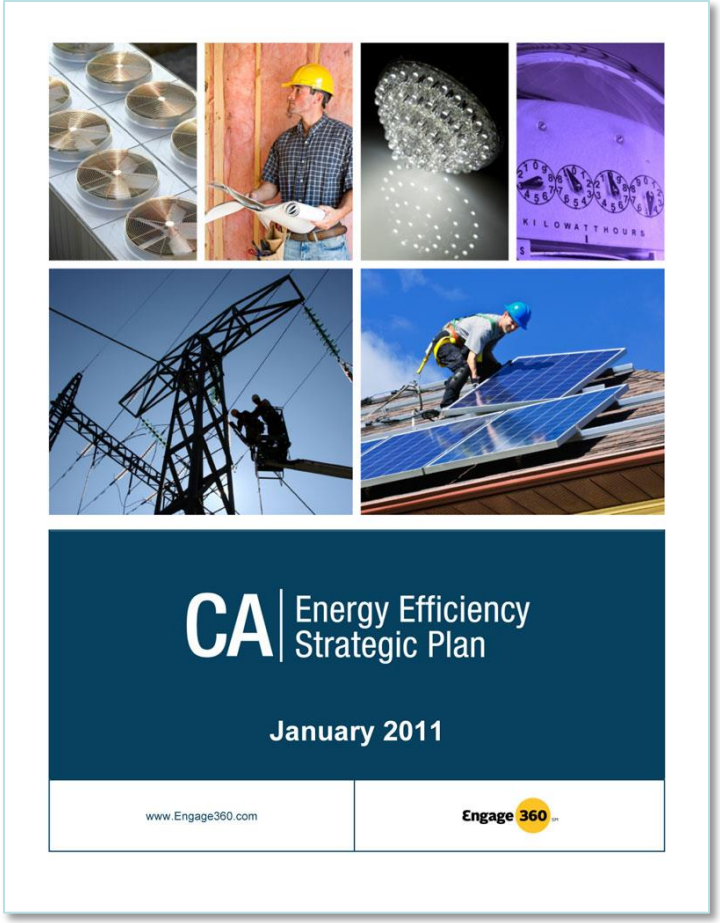
California Long-Term Energy Efficiency Strategic Plan

2007
- CPUC adopts Big Bold Energy Efficiency Strategies
- CPUC orders a Strategic Plan to achieve "all cost-effective energy efficiency."

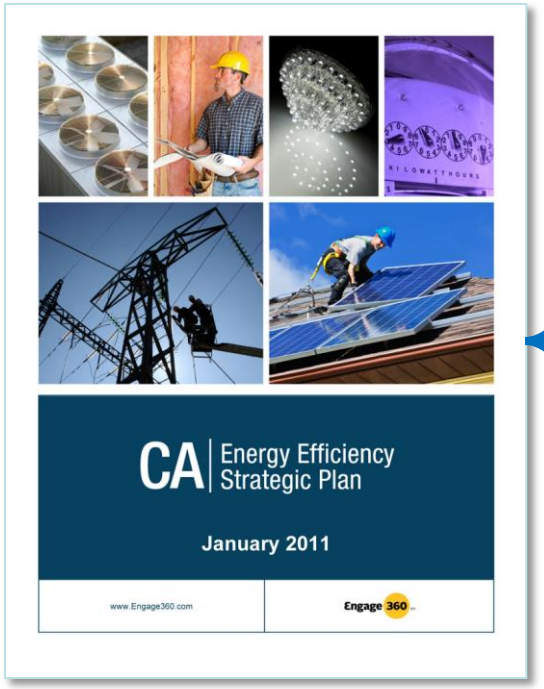
2008
- CPUC adopts the Strategic Plan

2009
- CPUC approves IOU programs shaped by the Strategic Plan

2013
- Strategic Plan update process begins



Strategic Plan Implementation Vehicles



- IOU Portfolios
- State Agencies
- Action Plans
- Champions Network
- Foundation Grants

Big Bold Energy Efficiency Strategies

Action Plans: A Project Management Tool for Strategic Plan Implementation

Strategic Plan			
GOAL			
	Near-Term 2010-2012	Mid-Term 2013-2015	Long-Term 2016-2020
Strategy 1	**Milestone**		
Strategy 2			
Strategy 3			

Action Plan			
STRATEGY			
	Champion	Actions	Timeline
Milestone 1	Champ 1 Champ 2	Action 1 Action 2 Action 3 Action 4	Q1 2011 Q2 2011 Q3 2011 Q4 2011
Milestone 2	Champ 1	Action	Q1 2012

Action Plan Example

- Strategy 1-3: Establish "Path to Zero" Campaign to Create Demand for High-Efficiency Buildings
- **1-3-2** Organize forums to develop and exchange experience and data on emerging technologies, practices, and designs that deliver ultra-low and ZNE buildings
- Champions: Peter Turnbull (PG&E), Gregg Ander (SCE), RK Stewart (Perkins & Will)

Complete
-Convene regular forums involving key market actors, technical experts

Q3 2010
-Record and inventory data and related emerging tech at forums, and publish on-line
-Survey forum participants re: best information for owners, architects

Q4 2010
-Coordinate forums with "Lead By Example" efforts (Strategy 2-1)
-Identify and craft ZNE best practices and technical guides; create a ZNE Mentorship program

ZNE Action Plan "Champions"

NRDC
The Earth's Best Defense

SMUD
Sacramento Municipal Utility District
The Power To Do More.

California Public Utilities Commission

SDGE
A Sempra Energy utility

CTG

Southern California Edison
An Edison International Company

sfenvironment.org
our home. our city. our planet

KEMA

PG&E

ZETA
zero energy communities

ConSol

IDeAs
... design facilities

Google

p2s

resource | media

DGS California Department of General Services

Waypoint
Building Group

Local Government Commission

WattStopper

Berkeley Lab
Lawrence Berkeley National Laboratory

P|E|C|I

Architectural Energy Corporation

BOMA International

University of California
ciee

ecos

BuildingWise

PERKINS + WILL

Actions Plans Developed / Underway

Completed

- Commercial ZNE
- HVAC (currently being updated)
- Lighting
- Research & Technologies (Co-led or led by Energy Commission)
- Codes & Standards (Co-led or led by Energy Commission)

Underway

- Local Government
- Industrial
- Residential ZNE

Energy Division Organizational Chart and Staffing

Energy Efficiency Organizational Chart

Energy Efficiency Branch
Manager: Pete Skala

Industrial and Agricultural Programs And Portfolio Forecasting

Supervisor: Jaclyn Marks

Program Areas

- Industrial and Agricultural
- Water Energy Nexus
- Continuous Energy Improvement
- Efficiency Savings Performance Incentive
- Emerging Technologies Program

Oversight Functions

- Cost Effectiveness
- Potential and Goals
- Data Base for Energy Efficient Resources (DEER)
- Non-DEER Work Papers
- Custom Projects
- EE Policy Manual
- Strategic Plan

Residential Programs And Portfolio Approval

Supervisor: Hazlyn Fortune

Program Areas

- Home Upgrade/Advanced Home Upgrade
- Regional Energy Networks
- Community Choice Aggregators
- Government Partnerships
- New Residential Buildings
- HVAC
- Financing
- Behavior Programs
- ME&O

Oversight Functions

- Portfolio Approval
- Portfolio Analytics
- Programmatic Stakeholder Engagement
- CARE Program Enrollment
- Marketing, Education, and Outreach

Commercial Programs And Portfolio Evaluation

Supervisor: Carmen Best

Program Areas

- New Commercial Buildings
- Lighting
- Codes and Standards
- Identification / Tracking of EE Safety Issues
- Workforce Education and Training
- Integrated Demand Side Management Program Oversight
- Institutional Partnerships
- AB 758
- Prop 39/K-12 Schools

Oversight Functions

- Annual Report
- EM&V Plan/Budget
- Data management/ Reporting
- Non-Savings Metrics
- EM&V Protocols and Methods
- Audit Oversight
- Market Studies

Thank You

More information:
http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/

Appendices

- New OIR
- Regulatory History of EE
- 2013-14 EE Program Details

New OIR Scope

- **Phase 1: 2015 Funding, with targeted changes**
  - **Prop 39 Support**
  - **SONGS Responses**
  - **Home Upgrade Programs**
  - **Water-Energy**
- **Phase 2: “Rolling Portfolio Cycles”**
- **Phase 3: Broader portfolio changes for 2016+ and Strategic Plan update**

Regulatory History of CPUC EE Programs

1970s and 1980s

- Late 1970s: inverted rate structures to encourage reduced consumption; utilities offer loan programs for residential customers
- 1976: Gas decoupling (a.k.a. “Supply Adjustment Mechanism”)
- 1982: Electric decoupling (a.k.a. “Electric Revenue Adjustment Mechanism”)
- 1980s: utility DSM spending declines due to surplus energy supplies and lower avoided costs

Regulatory History of CPUC EE Programs

Pre-Deregulation – *Energy Efficiency as Resource Procurement*

- I989: Hearing to address how DSM programs should fit into utility resource procurement, and how regulation could encourage desirable investments in DSM.
- 1990: “California Collaborative” report, a blueprint to revitalize DSM activity in California.
    - Proposed **new regulatory mechanisms** to allow utility shareholders to participate in the benefits of DSM
    - Created **new and expanded DSM programs** as part of a procurement portfolio
    - Recommended **policies to govern the regulatory treatment** of utility DSM program

Regulatory History of CPUC EE Programs

Pre-Deregulation – *1990s Shareholder Incentives*

- "Experimental" shareholder incentive mechanisms and OIR / OII to develop statewide standards and benchmarks to measure EE and to determine the appropriate levels of incentives
- Mix of "shared savings" and fixed "management fee" structures
- 1993: Commission approved shareholder incentives to continue

Regulatory History of CPUC EE Programs

Pre-Deregulation – *Measurement and Evaluation*

- In **1993** the Commission established **measurement and evaluation (M&E) protocols** for measuring energy savings after program implementation
- Utility shareholder earnings **directly linked to the results of program measurement and evaluation**
- The adopted protocols required utilities to conduct M&E studies along a predetermined schedule over a 10 year period
- Beginning in 1994, earnings would be paid out over a 10 year period, in four installments coinciding with study completion
- Each installment would be dependent on study results designed to true-up the real benefits

Regulatory History of CPUC EE Programs

Deregulation – *Market Transformation, Independent Administration, and CBEE*

- In 1997, with the advent of electric restructuring and a shift towards market-based energy services, the Commission:
  - Began to shift from energy efficiency **resource procurement to market transformation**
  - Announced its intention to **move administration of energy efficiency programs** from the utility companies **to an independent entity** through a completive solicitation
  - Appointed an independent board, the **California Board for Energy Efficiency (CBEE),** to oversee the transition to independent administration

Regulatory History of CPUC EE Programs

Deregulation – *Utility "Interim" Administration*

- During the expected transition to the new administrative structure for energy efficiency, the Commission authorized the utilities to continue to administer energy efficiency programs on an interim basis
- **1998 - 2000** program utility earnings were based on "milestones"
- **From 1998 to 2001:**
  - The Commission had to continually reassess how long utility interim administration would continue
  - The Commission had to order utilities to file program plans on very short notice just before the beginning of the program year
  - Very little time for Commission staff and parties to consider utility proposals

Regulatory History of CPUC EE Programs

Deregulation – *Demise of CBEE*

- In 1998, the State Personnel Board disapproves of agreements between CBEE and its technical and administrative consultants in response to a complaint by CSEA
- CBEE consultants were instructed to cease work and CBEE (a volunteer board) was left with insufficient resources
- The Commission agreed to take steps to create nine civil service positions to perform the work previously performed by the CBEE consultants
- Governor vetoes budget request for civil service positions
- Commission abolishes CBEE in early 2000

Regulatory History of CPUC EE Programs

Post -Deregulation – *Energy Crisis / CPUC administration of EE programs*

- 2000: Commission responds to the energy crisis by adopting the Summer Initiative programs to run in parallel with the utility PGC programs – allocating $72 million in unspent funds from prior years
  - The Commission allowed non-utilities to propose programs
  - Energy Division staff selected programs
- 2001: Legislature recognizes the importance of energy efficiency in addressing the energy crisis by appropriating $97 million from General Fund to the Commission for energy efficiency programs in SBX1-5
  - Energy Division staff managed contracts with large and small utilities, cities and companies
- 2002-2003: Commission made $104 million available to non-utility programs
  - Continued the process of Energy Division proposal review and program management of non-utility programs begun by the Summer Initiative and SBX1-5

2013-14 EE Portfolio

New 2013-14 Portfolio Initiatives

- $71 million for Regional Energy Networks and Community Choice Aggregators to provide innovative initiatives aimed at transforming the market
- $200 million committed to energy efficiency financing
- Redesigned shareholder incentive mechanism (Efficiency Savings and Performance Incentive or “ESPI” Mechanism)
- Separate August decision approved an additional $747 million for low income programs, including mechanisms to reduce high usage and control inappropriate enrollment

Residential Buildings

- **8 Subprograms:**
  - Appliances rebate program
    - Single-family and Multi-family dwellings
  - Basic CFL and Advanced lighting “upstream” buy-downs
  - Electronics “up/mid- stream” buy-downs
  - Home energy use survey & tools (home energy reports, online, by phone, in person)
  - *Energy Upgrade California*- comprehensive home energy improvement program

- **Additional Third-Party and Local utility programs**
  - e.g. Online Buyers Guide (SCE)

- **18%** of planned electric savings, **15%** of gas savings, and **22%** of portfolio budget

Whole-house Retrofit Subprogram

- **Energy Upgrade California Home Upgrade**
  - Advanced Home Upgrade (performance) and Home Upgrade (Flexible) paths
    - Incentives; some marketing & outreach
  - Target for 22,000 homes upgraded in 2013-14
  - New Home Upgrade path looks to give the customer a more flexible lower cost project than the Advanced Home Upgrade path
  - SoCalREN and BayREN will be acting as program implementers running Home Upgrade with ratepayer funds

Commercial Buildings

- **5 Statewide programs**
  - Non-Residential Audits
  - Deemed Incentives
  - Calculated Incentives
  - Continuous Energy Improvement
  - Direct Install

- **Local utility programs**

- **Third-party administered programs**
  - Targeting hospitals, lodging, schools, office buildings and various other niche markets

- **23%** of planned electric savings, **18%** of gas savings, and **22%** of portfolio budget

HVAC Programs

- **5 Statewide Programs:**
  - Commercial Quality Installation
  - Energy Star Residential Quality Installation
  - Residential Quality Maintenance
  - Commercial Quality Maintenance
  - Commercial Upstream Distributor Rebate

- **Third Party Programs and Proposed Pilot Programs:**
  - AirCare Plus (PG&E) and Premium Efficiency Cooling (SDG&E)
  - Residential Upstream Distributor Rebate and Residential to Code Rebate

Codes & Standards Program

- **Analysis /Support activities**
  - Principal audience is **CEC's** building and appliance standards.
  - Also influences federal appliance standards via DOE proceedings and the legislative process

- **Major program activities:**
  - Codes and Standards Enhancement (CASE) studies
  - Compliance Enhancement
  - "Reach Codes"
  - Planning and Coordination

- **22%** of planned electric savings, **25%** of gas savings, and **1%** of portfolio budget*

*Savings based on 2010-2012 cycle, non-verified.